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# ABSTRACTS

## CLINICAL VIGNETTES

**CYCLOSPORINE-INDUCED THROMBOTIC MICROANGIOPATHY IN A RENAL TRANSPLANT PATIENT.** A. Abdel Latif[1], H. Jneid[1], I. Tleyjeh[1], W. Braun[1]; [1]Cleveland Clinic, Cleveland, OH *(Tracking ID #52426)*

LEARNING OBJECTIVES: 1. Learn the differential diagnosis of renal graft failure post-transplantation. 2. Recognize cyclosporine as a cause of thrombotic microangiopathy post-transplantation. 3. Diagnose thrombotic microangiopathy (TMA) in the absence of classical features.
CASE INFORMATION: A 48 yo F was admitted for further work up of her deteriorating renal graft function 5 months after transplantation. Past medical history is significant for living unrelated donor kidney transplantation for ESRD secondary to polycystic kidney disease. She was positive and her donor was negative for cytomegalovirus (CMV) antibodies, and she received appropriate prophylaxis. Post-transplant immunosuppression included cyclosporine (CSA), mycophenolate, azathioprine and prednisone. She subsequently developed tissue invasive CMV infection that was successfully treated. A renal biopsy 1 month earlier showed no rejection. On admission, her physical exam was unremarkable. Labs showed: Hb = 7.4 ; platelet = 174; BUN = 77; creatinine = 4.5; LDH = 270; peripheral smear: microcytic anemia but no schistocytes. Blood and urine were negative for CMV, and upper gastrointestinal endoscopy revealed no evidence of CMV infection. Polymerase chain reaction for parvovirus B19 and hepatitis C antibody panel were negative. Repeat T lymphocyte cross match was normal. Allograft ultrasound and work up for hypercoaguable state were negative. Kidney biopsy showed thrombotic microangiopathic (TMA) changes with no evidence of graft rejection or CMV infection. All her CSA levels had been in therapeutic range. The TMA was attributed to CSA, which was changed to tacrolimus. She underwent plasmapheresis, received intravenous immunoglobulins and triple therapy with calcium channel blockers-pentoxifylline-aspirin. Kidney function continued to worsen and hemodialysis was initiated 7 months after her renal transplantation.
DISCUSSION: CSA-induced thrombotic microangiopathy (TMA) is one of the uncommon but dreadful complications of CSA therapy in transplant patients. Incidence varies widely from 5%to 28% with higher prevalence in women. Risk factors for TMA nephropathy include CMV infection, other active viral infection (hepatitis C, parvovirus), bacterial infections, and prior history of thrombocytopenia. CSA-induced TMA usually occurs within the first 6 months of transplantation with a subtle presentation, though the onset has been reported up to 5 years after the transplantation. Clues to the diagnosis include refractory anemia, acidosis, thrombocytopenia, increasing serum BUN and creatinine levels and elevated serum LDH level. Biopsy is required for diagnosis. Our patient had an atypical presentation with renal failure and anemia (partially secondary to renal failure) only, but had normal platelet count and no peripheral schistocytes or other systemic features. The pathogenesis of TMA nephropathy involves renal endothelial cell injury and decreased prostacyclin levels. Graft salvage is achieved in only 25 – 45% of patients.

**BROWN RECLUSE SPIDER BITE: JUST MYALGIAS OR SOMETHING MORE?** F. Aduli[1], J. Eichhorn[1], J. Wiese[1]; [1]Tulane University, New Orleans, LA *(Tracking ID #51263)*

LEARNING OBJECTIVES: 1) Persistence of general symptoms following a brown recluse spider bite should prompt consideration of a complication. 2) Brown recluse spider bite can cause rhabdomyolysis.
CASE INFORMATION: A 36 year-old man presented with myalgias, fever and vomiting. One day prior he noted a one-centimeter macular, erythematous lesion on his left shoulder and paresthesia in his left arm. The rash was attributed to a spider bite. Four days later he returned to the emergency department complaining of dark urine. He denied ethanol abuse, illegal drug use, or intense physical activity. His blood pressure was 116/59 and temperature 37.6. The remaining exam was normal. The CPK was 24,000 mg/dL and AST 630 IU. The toxicology screen, hepatitis panel, and blood cultures were negative. Rhabdomyolysis was diagnosed. Aggressive intravenous hydration was initiated resulting in preservation of renal function. The CPK peaked at 65,000 mg/dL before returning to normal.
DISCUSSION: The brown recluse spider is endemic to the south and prefers to shelter in infrequently used or secluded areas. A history of exposure to secluded areas is therefore important in making the diagnosis. Although the majority of bites are limited to a local reaction, ten percent of the cases may result in a severe local reaction or systemic symptoms (Loxoscelism). Loxoscelism is characterized by fever, vomiting, myalgias and hemolysis. Anuria may develop; but acute renal failure is rare. Severe skin necrosis occurs in twenty percent and one percent develop extensive hemolysis. The spider bites are treated with local antibiotics and dapsone while only supportive care can be offered for the systemic manifestations. Persistence of general symptoms following a brown recluse spider bite should prompt consideration of rhabdomyolysis.

**PROGRESSIVE DEBILITATING WEAKNESS IN A PREVIOUSLY ROBUST ELDERLY WOMAN.** G. Agarwal[1], R. Granieri[1]; [1]University of Pittsburgh, Pittsburgh, PA *(Tracking ID #48164)*

LEARNING OBJECTIVES: 1) Recognize the presentation of myasthenia gravis (MG). 2) Diagnose MG using laboratory and clinical parameters. 3) Recognize the treatment of MG.
CASE INFORMATION: Mrs. A.B. is a 74 year old female with hypertension and diabetes mellitus who presented with a nine month history of progressive weakness. She initially developed bilateral proximal arm weakness which progressed to bilateral proximal leg weakness. She sought medical attention when she was no longer able to ambulate. She denied numbness, tingling, or pain, but did admit to dysphagia with solids and liquids upon initiation of swallowing. Physical exam revealed ptosis of the left eye and intact extraocular muscles. Muscle strength in bilateral biceps/triceps was 3/5 and hip flexors were 2/5. She was unable to maintain her arms in forward abduction for greater than 10 seconds and was unable to ambulate. The remainder of the neurological exam was unremarkable. Laboratory data revealed a normal CPK,ANA,ESR, thyroid function studies, and cortisol level. EMG revealed decreasing amplitude with repetitive stimulation, a pattern consistent with MG. Acetylcholine receptor antibody levels were negligible. She was treated with IV immunoglobulin and responded well. Upon discharge, she was able to ambulate with minimal assistance.
DISCUSSION: Myasthenia gravis (MG) is a disorder of the neuromuscular junction due to antibody-mediated autoimmune attack of acetylcholine receptors on the post-synaptic surface. MG can affect all ages, although it peaks in women in their twenties and thirties and men in their fifties and sixties. The main features are weakness and fatigability with preservation of deep tendon reflexes. Diplopia, ptosis, facial weakness, and dysphagia are common. Diagnosis can be solidified with edrophonium, an anti-acetylcholinesterase that inhibits the breakdown of acetylcholine. In myasthenic patients, there is an improvement in strength of weak muscles lasting for approximately five minutes. Further testing with repetitive nerve stimulation will show a rapid reduction in the amplitude of the evoked responses of more than 10 – 15%. Anti-acetylcholine receptor antibodies are detectable in the serum of approximately 80% of all myasthenic patients. Its presence is virtually diagnostic, but a negative test does not exclude the disease. Treatment of MG includes anticholinesterase medications. In patients with a myasthenic "crisis", IV immunoglobulin or plasmapheresis is effective as short-term treatment. For long-term management, glucocorticoids, cyclosporine, azathioprine, and mycophenolate have been shown to be effective. CT or MRI of the mediastinum should be performed to rule out thymoma, which should be removed if found. In the absence of a thymoma, thymectomy is recommended in patients with generalized MG who are between the ages of puberty and at least 55 years old. Up to 85% of patients will experience improvement after thymectomy and 35% of these patients achieve drug-free remission.

**AN ETHICAL DILEMMA: TREATING THE COMPLICATIONS OF INTRAVENOUS DRUG USERS.** S. Agresta[1], M. Kane[1]; [1]Tulane University, New Orleans, LA *(Tracking ID #50822)*

LEARNING OBJECTIVES: 1. Discuss the ethical dilemma involved with the treatment of active intravenous drug users.
CASE INFORMATION: A 44 year-old presented with progressive dyspnea, fevers and sub-sternal tightness. He had endocarditis requiring porcein valve replacement in 1993. He started using intravenous cocaine and heroin weekly one month prior. He had a fever of 40 C and a holosystolic murmur. Blood cultures grew steptococcus viridans. Transesophageal echocardio-

graphy showed aortic valve vegetations on all leaflets and a ring abscess. Toxicology screen was positive for cocaine. Ampicillin and gentamicin were initiated. After six weeks of therapy, the aortic vegetations and blood cultures persisted. Cardiothoracic surgery was consulted, but declined intervention, citing the likely recidivistic drug use and futility of care. Surgical intervention in active intravenous drugs users is an issue of ethical debate. Ninety percent of heroin users will reuse even after successful rehabilitation. Continued intravenous use represents a hundred-fold increased risk of recurrent endocarditis. The apparent futility of surgical intervention in this setting has prompted surgical services to adopt a "one strike and you are out policy." This is almost a certain death sentence for patients meeting surgical criteria. The Humanities committee was involved but could not establish ethical grounds for challenging surgery's decision. The precedent of withholding organ transplantation from continuing drug users was applied.
DISCUSSION: Physicians should counsel patients who have received previous valve replacements that continued intravenous drug use may disqualify them from lifesaving interventions. Added emphasis on rehabilitation following valve replacement may be the only sure method to avoid this dilemma.

**A 57 YEAR-OLD WOMAN WITH SUPRAPUBIC PAIN.** F. Al-Ashkar[1], R. Abou Jawde[1], K. Tarakji[1], R. Shurmur[1], D. Blumenthal[1]; [1]Cleveland Clinic Foundation, Cleveland, OH *(Tracking ID #51781)*

LEARNING OBJECTIVES: 1) Recognize Osteitis Pubis in patients presenting with pubic and suprapubic discomfort. 2) Diagnose Osteitis Pubis from its clinical and radiological presentations. 3) Treat and manage patients with Osteitis Pubis.
CASE INFORMATION: A 57-year-old woman presented to our hospital with severe suprapubic pain for about 7 weeks duration. The pain started in the left thigh and progressed to the groins, pubic and suprapubic area with no history of fever, chills, or lower extremity neurologic deficit. She received a course of antibiotics and a trial of narcotics with no benefit. On physical examination she was afebrile. There was no joint erythema, swelling or increase warmth. There was severe tenderness on palpation of the pubic bone and adductor tendons, and mild tenderness over the hip joints and trochanteric bursae. Internal and external rotation and flexion and extension of the hip were within normal limits, but moderately painful. Abduction and adduction of the thighs were limited because of severe pain, adduction more severe than abduction. The rest of the physical exam was unremarkable. Lab results: WBC 13.2k/ul, WSR 132, CRP 12.1. Blood and urine cultures were negative. Ultrasound of the pelvis and thighs was negative for fluid collection or periosteal abnormality. Hip/pelvic x-rays showed widening of the pubic symphysis without evidence of bone destruction or erosion. MRI of the pelvis showed marrow edema in each superior and inferior ramus and symphysis extending to nearby soft tissue. After careful review of the history, physical exam, disease course and imaging the impression was most suggestive of Osteitis Pubis. The patient was treated with 60 mg of Prednisone, rofecoxib, oxycontin and bed rest. On follow up visit to the clinic she had significant improvement, was not requiring narcotics and was able to bear weight and walk. Her WSR dropped to 49, CRP to 2.1.
DISCUSSION: Osteitis Pubis is an inflammation of the pubic bone, symphysis and surrounding structures. Its etiology is unclear, possibly due to trauma to the periosteum, low-grade infection, trophic bone changes or venous thrombosis of pubic veins. Symptoms include suprapubic pain with extension to the inner thighs and pain that is aggravated by ambulation or abdominal stress. Physical findings could be identical to osteomyelitis including localized tenderness, painful restricted abduction and a wide-based waddling gait, fever, leukocytosis, elevated acute phase reactants. The diagnosis of Osteitis Pubis is suspected in a patient presenting symptoms 1 to 8 weeks after various urological and gynecological procedures,trauma or after vigorous excercise. Treatment consists of bed rest, anti-inflammatory (NSAIDs, Steroids) and pain medication. In cases that are resistant to medical management surgery may be indicated, consisting of a wedge resection of the symphysis pubis.

**THIGH PAIN IN A POORLY CONTROLLED DIABETIC.** F. Abouzahr[1], E. Al-Hihi[2], K. Watson[3]; [1]Internal Medicine Residency Program, University of Missouri-Kansas City, Kansas City, MO; [2]Section of General Internal Medicine, University of Missouri-Kansas City, Kansas City, MO; [3]Dept. of Pathology at St. Lukes Hospital, Kansas City, MO *(Tracking ID #50904)*

LEARNING OBJECTIVES: Identify skeletal muscle infarction as one of the musculoskeletal complications of poorly controlled diabetes.
CASE INFORMATION: A 32 year-old African American female with history of poorly controlled Diabetes type 1 secondary to non-compliance was admitted with DKA. The patient complained of 6 – 8 weeks of intermittent left thigh pain, non-radiating & moderate in severity. No previous trauma. History of swelling of inner side of left thigh. Patient was unable to walk secondary to pain. Past medical history: DM type 1, Hypertension. Social: denies smoking, alcohol or illicit drugs. P/E: Afebrile, BP: 158/96, Lt thigh: swelling and tenderness at medial side with mild erythema (picture#1), peripheral pulses present. Otherwise unremarkable exam. Labs: WBC 11900 with normal diff, ESR 91, CK: 291. Patient continued to complain of severe Lt thigh pain. Venous Doppler U/S was negative for DVT, Lt femur x-ray was unremarkable except for soft tissue swelling, MRI showed mystitis involving the Vastus Medialis and portion of the Vastus Lateralis (fig #1). Muscle biopsy showed multiple necrotic myofibres, replacement fibrosis, mononuclear cell infiltrates & regenerating muscle fibres compatible with skeletal muscle infarction (fig#2,3). Patient was started on pain medications and glycemic control program. The patient was discharged in a good condition.
DISCUSSION: Spontaneous infarction of muscle is a rare condition that usually affects patients with longstanding and poorly controlled diabetes mellitus. Affected patients present with acute onset of painful swelling of the thigh or calf that then evolves over days or weeks. There is no history of trauma. The swelling may be mildly to extremely tender. Creatinine kinase levels may be normal or increased. Awareness of the syndrome and the characteristic clinical features usually suggest the diagnosis. MRI and muscle biopsy confirms the diagnosis. Diabetic muscle infarction resolves spontaneously over a few weeks to months in most patients.

**MEDICAL ERROR CAN BE A BITTER PILL.** M. Alhaddad[1], S. Frost[1]; [1]Cleveland Clinic Foundation, Cleveland, OH *(Tracking ID #50667)*

LEARNING OBJECTIVES: 1) Recognize that therapeutic errors are common, costly, and injurious to patients. 2) Recognize that mistakes in monitoring for adverse drug events constitute a form of medication error. 3) Recognize that medication counseling is often inadequate, and contributes to medication errors.
CASE INFORMATION: A 70-year-old man with known ischemic cardiomyopathy was hospitalized with dizziness, epigastric pain, and a 5-day history of black stool. He was well prior to this, specifically noting improvement in his nocturnal leg cramps after starting quinine a month ago. Physical exam revealed BP = 105/60 and HR = 102 while supine, BP = 88/50 and HR = 128 while standing, petechiae of the distal lower extremities, epigastric tenderness, and melena. Nasogastric lavage demonstrated scant coffee ground material. Laboratory revealed WBC = 4.5 K/uL, hemoglobin = 8.2 gm/dL, and platelets = 7 K/uL. Previous hemoglobin measurements were normal, and previous platelet counts ranged from 118 – 150 K/uL, but had not been measured since quinine was prescribed. Gastrointestinal (GI) bleeding exacerbated by quinine induced thrombocytopenia was diagnosed. Quinine was stopped, and he was treated with prednisone, and blood and platelet transfusions. Duodenoscopy demonstrated duodenal ulcer. Five days after admission, he was discharged home after resolution of bleeding, with a platelet count of 142 K/uL.
DISCUSSION: Despite a documented low baseline platelet count, our patient was not monitored for thrombocytopenia after starting quinine, which is a well-reported toxicity of this drug. GI bleeding might have been averted if thrombocytopenia was discovered earlier. The Institute of Medicine estimated in 1999 that 1.3 million patients per year are injured by medical treatment, and that 44,000 – 98,000 die as a result of these injuries. Complications of medication use are among the most common adverse events resulting in injury. Adverse drug events (ADEs) due to errors in ordering, transcribing, and administering medications are well recognized as medication errors. However, ADEs due to inadequate monitoring of patients after initiation of new medications may be overlooked as constituting medication errors, resulting in missed opportunities to learn from these mistakes. To date, most research about interventions to decrease rates of medication errors has focused on system changes related to computerized order entry and decision support. As prior research has demonstrated that patients often receive inadequate counseling about ADEs, we believe that interventions designed to educate physicians regarding the importance of patient counseling will increase awareness of the potential for injury due to errors in medication monitoring. Research about contributors to inadequate medication counseling, and interventions addressing these issues are needed.

**CONSIDERING THE DIAGNOSIS OF STRONGYLOIDIASIS IN A YOUNG WOMAN ANTICIPATING RENAL TRANSPLANT.** G. Alvarez-Del Real[1], S.D. Mawhorter[1], D.L. Longworth[1]; [1]Cleveland Clinic Foundation, Cleveland, OH *(Tracking ID #52204)*

LEARNING OBJECTIVES: 1. Recognize strongyloidiasis as a potential cause of diarrhea in immunocompromised hosts. 2. Recognize the importance of the social, residence and travel history in assessing patients with diarrhea. 3. Discuss diagnosis, complications and management of strongyloidiasis.
CASE INFORMATION: A 24-year-old woman with SLE and ESRD on chronic hemodialysis presented with worsening diarrhea of several months duration, epigastric pain, anorexia, nausea and abdominal distention. She was adopted to the USA from rural Brazil at age 12 years. 5 months prior to admission she commenced prednisone 10 mg qd and plaquenil for an SLE exacerbation. She was admitted to the hospital 5 times during that time. On examination she was afebrile, had obvious ascites and mild epigastric tenderness without rebound. Stool culture and C. difficile toxin studies were negative. There was no eosinophilia. Routine urinalysis disclosed Strongyloides stercoralis larvae, as did subsequent stool examinations. Paracentesis revealed a serum ascites albumin gradient of 2.9, consistent with portal hypertension; parasites were not detected. Strongyloides antibody was not detected by EIA. Blood cultures grew Acinetobacter calcoaceticus-baumannii and the patient received piperacillin-tazobactam, then ciprofloxacin. She received ivermectin 12 mg po qd for 6 days. Prednisone was tapered to 7.5 mg qd. Diarrhea resolved and follow-up stool exams were negative.
DISCUSSION: S. stercoralis is a helminthic parasite endemic throughout the developing world that can produce acute, chronic or asymptomatic infection in immunocompetent hosts. The parasite's unique life cycle of autoinfection permits persistence of asymptomatic infection for decades. Immunosupperssion may lead to acceleration of the autoinfection cycle which produces diarrhea and, if not recognized, a syndrome of widespread parasitic infection called the hyperinfection syndrome (HIS). This may present with diarrhea, intestinal perforation, parasitic or bacterial pneumonia, Gram-negative bacteremia, and rarely bacterial meningitis. Our patient had accelerated autoinfection from exogenous corticosteroid administration. Strongyloidiasis must be considered in the differential diagnosis of immunocompromised hosts with diarrhea who have even a remote history of residence in or travel to an endemic area. Eosinophilia is absent in a third of individuals with HIS. The sensitivity of 3 stool exams for larvae is about 85%; serology by EIA has a sensitivity of 68 – 95%. Ivermectin has supplanted thiabendazole as the treatment of choice because of superior efficacy and lower toxicity. Persistence of infection has been associated with HTLV-1 seropositivity.

**REVERSIBLE SEVERE BRADYCARDIA AND ASYSTOLE INDUCED BY TRANSIENT HYPOXIA.** A. Alwani[1], R. Sudheendra[1], I. Visweshwar[1], A. Ameen[1]; [1]Jersey City Medical Center, Jersey City, NJ *(Tracking ID #52436)*

LEARNING OBJECTIVES: 1. Recognize that transient hypoxia can result in severe bradycardia and asystole. 2. Distinguish between vagally-mediated and anoxia-induced bradycardia. 3. Need for adequate oxygenation prior to suctioning patients on ventilator.
CASE INFORMATION: Case: A 46 year-old male was admitted to the Intensive care unit after having jumped from a height of twenty feet in an attempted suicide-bid. He had sustained fractures of the pelvis and shaft of the humerus. He developed ARDS on the third day and needed ventilatory support with FiO2 > 0.7. He also had a Greenfield filter inserted on day one. The patient was noted to develop profound bradycardia (30 – 40 bpm) during each

attempt at suctioning. One such episode resulted in a sinus pause of three seconds. Concomitantly, the patient developed significant hypotension. Initially, this was thought to be due to vagal stimulation, secondary to suctioning. However, later it was noted that the patient repeatedly became bradycardic and hypotensive immediately after disconnecting from the ventilator and prior to suctioning. The bradycardia was reversed with i.v. atropine. Subsequently the patient was hyperoxygenated prior to any attempt to disconnect from the ventilator. This prevented the development of bradycardia and hypotension in the patient. We conclude that the cause for the bradycardia in this patient is secondary to transient hypoxia rather than suctioning – induced reflex bradycardia.
DISCUSSION: Reflex bradycardia secondary to vagal stimulation during maneuvers such as suctioning are a well-known phenomenon. This is due to direct vagal inhibition. Hypoxia-induced bradycardia presenting, as a primary cardioinhibitory reflex due to peripheral chemoreceptor stimulation is less well reported in humans. However, this has been studied extensively in experimental animals. This phenomenon has also been noted in Obstructive Sleep Apnea patients. Since relatively small changes in PaO2, can result in severe bradycardia, recognition of this mechanism of hypoxia-induced cardioinhibitory reflex is extremely important in the clinical management and outcome of such patients.

**CLOPIDOGREL INDUCED SIDEROBLATIC ANEMIA.** S. Ansari[1], V. Martin[1]; [1]University of Cincinnati, Cincinnati, OH *(Tracking ID #51046)*

LEARNING OBJECTIVES: 1. Recognize a previously unknown side effect of a commonly used drug, clopidogrel.
CASE INFORMATION: Sideroblastic anemia has been associated with drugs like INH, chloramphenicol, cycloserine and pyrazinamide. Clopidogrel has been associated with TTP and aplastic anemia. There has been no reported association between sideroblastic anemia and clopidogrel or other antiplatelet agents. We present a case of clopidogrel induced sideroblastic anemia. A 55 year old male with a history of oxygen dependent COPD presented with episodes consistent with amaurosis fugax and was subsequently found to have significant carotid disease. He underwent a left CEA and was placed on clopidogrel. This patent had high hemoglobin levels in the past (18 – 19 gm/dL), which were attributed to secondary polycythemia due to his COPD, continued smoking and non-compliance with the use of oxygen. He had been phlebotomized in the past and his hemoglobin had stabilized approximately at 15 gm/dL. Over the subsequent three months after initiation of clopidogrel, his hemoglobin followed an indolent declining course. Patient presented with SOB and fatigue and was found to have a hemoglobin of 5 gm/dL. His MCV, which had been a low normal in the past, was now in the microcytic range, his iron studies were elevated, (ferritin 800, serum iron 281), an erythropoietin level was 20 times the normal (1290) and his reticulocyte count was abnormally low (0.24). A complete GI evaluation involving both upper and lower endoscopy did not reveal any source of bleeding to account for anemia. There was no evidence of hemolysis and the patient did not have a history of alcohol use, which has been associated with sideroblastic anemia. A subsequent bone marrow biopsy revealed significant normoblastic erythroid hyperplasia, no dysplastic features, scant iron stores and numerous sideroblasts.
DISCUSSION: We hypothesize that clopidogrel deranges heme synthesis in the developing red blood cell leading to impaired hemoglobin production with the formation of hypochromic, microcytic and other anisocytosis which are the progeny of ringed sideroblasts that constitute the diagnostic hallmark of any sideroblastic anemia. Pt underwent several units of transfusion to raise his hemoglobin to a level of 10 gm/dl. The patient was taken off clopidogrel, his hemoglobin reached its previous baseline of 17 gm/dl in a period of three months and has been stable since.

**IMMUNE RESTORATION DISEASE AFTER TREATMENT WITH HAART.** G.D. Applebaum[1], P. Balingit[1]; [1]UCLA San Fernando Valley Program, Sylmar, CA *(Tracking ID #51834)*

LEARNING OBJECTIVES: 1) Recognize that immune restoration after initiation of highly active antiretroviral therapy (HAART) can be accompanied by an exaggerated inflammatory response and reactivation of sub-clinical infections. 2) Emphasize that reactivation of Mycobacterium avium infection can be a severe complication of immune restoration. 3) Appreciate that patients with CD4 < 50 who are starting HAART are most at risk for immune restoration disease.
CASE INFORMATION: A 36 year-old man with AIDS was admitted with fevers and chills, myalgias, and severe lower back pain increasing over the course of one week. He denied having dysuria, cough, or weakness of the extremities. Four weeks prior, the patient began taking a new HAART regimen. At that time, CD4 count was 21 and HIV viral load was 261,000. An antimycobacterial drug regimen had also been initiated at that point for a sputum culture that was slowly growing yet-unidentified acid-fast bacilli. On admission, the patient was febrile with a temperature of 39 C. His exam revealed a tender lower abdomen and back, but hepatosplenomegaly was not noted. Palpable lymphadenopathy was not appreciated in the cervical, axillary, or inguinal regions. WBC was 9300, LDH was 478, lipase and liver transaminases were within normal limits, and urinalysis showed no cells. CT scan of the abdomen revealed large retroperitoneal lymphadenopathy. The patient's pain was controlled with morphine and he remained febrile. When final sputum culture confirmed Mycobacterium avium complex, specific medication for MAC was given. Further testing showed the patient's CD4 to be 82, and a diagnosis of immune restoration disease with recurrence MAC lymphadenitis was made.
DISCUSSION: Highly active antiretroviral therapy (HAART) can lead to potent suppression of HIV replication and a resulting increase in a patient's CD4 T-cells. The goal of HAART is to restore immune function and positively affect morbidity and mortality associated with opportunistic infections and AIDS related illnesses. Immune restoration may have deleterious clinical effects, however, as some patients may experience an exaggerated inflammatory response to a sub-clinical infection. Reactivation of Mycobacterium avium complex (MAC) is one of the more common presentations of immune restoration disease. Fever and painful intra-abdominal lymphadenitis are a common pattern of MAC infection during immune restoration, and will usually resolve with appropriate antimycobacterial therapy. In HAART responders, recurrence of MAC infection can even occur when patients are already receiving antimycobacterial medications. Complications of immune restoration occur most frequently during the first 2 months after initiation of HAART and are more common in patients who begin with profound immune suppression (CD4 < 50). Immune restoration disease should be considered in patients with CD47 < 50 who are starting HAART.

**BACHELOR SCURVY.** R. Arrington[1], L. Coberly[1]; [1]University of Cincinnati, Cincinnati, OH *(Tracking ID #50989)*

LEARNING OBJECTIVES: 1. Recognize vitamin C deficiency as an underdiagnosed nutritional deficiency. 2. Diagnose scurvy from its clinical hallmarks.
CASE INFORMATION: A 43 year-old alcoholic was "found down". He was hypotensive, febrile and confused. Physical exam was significant for cachexia, poor dentition and bibasilar crackles. On skin exam, he had perifollicular hemorrhagic skin lesions with hyperkeratoses, mostly on his lower extremities, diffuse petechiae, and bilateral flank ecchymoses. Hemoglobin was 10.6 g/dL, platelets 87 k/uL, blood urea nitrogen 122 mg/dl, and a creatinine of 3.3 mg/dl (baseline 4/0.7). Coagulation studies were normal. Chest x-ray revealed bilateral lower lobe opacities. Blood cultures were negative. Ascorbic acid level was <0.12 mg/dL (normal 0.2 – 1.9mg/dl). The patient was treated for hypovolemia and pneumonia and received oral ascorbic acid three times daily. His illness progressed to severe sepsis and ARDS, while his skin lesions improved over several weeks with vitamin replacement. He was eventually discharged to a long- term care facility.
DISCUSSION: Historically referred to as "bachelor scurvy" in elderly men living alone and alcoholics, vitamin C deficiency, results from impaired formation of mature connective tissue. This leads to blood vessel fragility and poor wound healing. Hallmarks include follicular hyperkeratosis, perifollicular hemorrhages and coiled hairs, but most patients present with anemia and fatigue and can rapidly progress, like our patient, to respiratory distress and cardiovascular collapse due to capillary leak. The diagnosis of scurvy is primarily based upon dietary history and skin findings, but low ascorbic acid levels and a clinical response to repletion support the diagnosis. In summary, Vitamin C deficiency occurs infrequently in the United States, but should be considered in any malnourished patient, as prompt treatment can reverse the course toward cardiovascular collapse.

**FROM NEUTROPENIA TO PANCYTOPENIA, ALCOHOL DOES IT ALL.** A. Arshad[1], K.V. Gopalakrishna[1]; [1]Fairview Hospital, Cleveland, OH *(Tracking ID #51139)*

LEARNING OBJECTIVES: 1) Recognize how a chronic alcohol use can lead to pancytopenia. 2) Understand the effects of ethanol on the bone marrow especially agranulocytosis leading to increased susceptibility to infection. 3) Emphasize the importance of abstinence for revival of bone marrow.
CASE INFORMATION: A forty-four year old gentleman with a history of alcohol abuse presented with high-grade fever and a recent sore throat. He had fevers with shaking chills and a cough productive of whitish sputum for three days. Apart from a thirty-year history of heavy alcohol use he had been recently admitted with upper GI bleeding and alcohol induced liver disease. On presentation he was febrile, hypotensive, tachycardic, jaundiced and very lethargic. He had bruises all over his body, his stool was positive for occult blood and spider angiomata were seen. There was dullness at the right lung base, hepatomegaly and splenomegaly. Laboratory work showed hemoglobin of 7gm/dl, platelet count was 30,000, and his white blood cell count was 0.8 with polymorphs of 0.0. Other pertinent lab values included a MCV of 104.6, total bilirubin of 9.2, AST of 99, ALT of 48 and a PT of 45.3. Chest X-ray showed a dense right lower lobe infiltrate while CT scan of the abdomen showed hepatomegaly, splenomegaly and ascites. He was started on antibiotic coverage for neutropenic fever and his blood counts were monitored closely. A bone marrow biopsy was done to evaluate the pancytopenia and was seen to be remarkable for marked granulocytic hypoplasia and moderately decreased megakaryocytes. Over the course of a week our patient gradually improved, his neutropenia also gradually recovered and he was finally discharged from the hospital to an alcoholism rehabilitation facility.
DISCUSSION: This case illustrates how alcohol induced neutropenia should always be a consideration in an alcoholic person presenting with fever and sepsis. Anemia in alcoholics is well known and well reported in literature. Alcohol has severe effects on all cell lines in the bone marrow and can cause severe neutropenia and thrombocytopenia in addition to anemia. Ethanol has direct suppressive effects on heme biosynthesis including inhibition of activity of intermediate enzymes in addition to its effects on folate and B 12 metabolism. The effects of alcohol on myelosupression include inhibition of GM-CSF, and decreased ability of mitogens to stimulate lymphocyte transformation. Both ehanol and its metabolite acetaldehayde have these effects on the bone marrow while the concentration required for suppression of heme biosyntheis are much less than those required for myelosuppression. Although administration of high doses of folate and pyridoxine have been shown to delay the effects of alcohol on the bone marrow and in some cases help in reversing them, the treatment of alcohol induced pancytopenia lies in the absolute abstinence from alcohol.

**ACUTE CARDIOMYOPATHY: A PRESENTATION OF TOXIC SHOCK SYNDROME.** A. Arshad[1], K.V. Gopalakrishna[1]; [1]Fairview Hospital, Cleveland, OH *(Tracking ID #51143)*

LEARNING OBJECTIVES: 1) Recognize acute heart failure as a presentation of toxic shock syndrome. 2) Understand the importance of physical examination in making a diagnosis. 3) Understand the importance of supportive therapy in addition to drainage of site of infection in management of toxic shock syndrome.
CASE INFORMATION: A nineteen year old apparently healthy young male initially presented to the ER with vague symptoms of malaise, fevers and diffuse rash. He was reassured and discharged on supportive treatment. He presented two days later with fevers, chills and lethargy. He was in respiratory distress needing intubation and hypotensive needing large volume crystalloid and vasopressor support. Physical examination done at this time revealed B/L diffuse coarse crackles, normal heart sounds with a holosystolic murmur and B/L marked

pitting edema with poor capillary refill. Initial lab work revealed metabolic acidosis and acute renal failure. Chest X-ray showed pulmonary vascular congestion and an echocardiogram showed severe left ventricular hypokinesis with an ejection fraction of 25%. Supportive treatment was continued, he was started on broad-spectrum antibiotic treatment and other investigations were done. He continued to deteriorate and a repeat physical examination done two days later showed an area of erythema and induration on the left buttock which had been missed initially. Incision and drainage revealed gram positive cocci in pairs and chains. Treatment with immunoglobulin was started at this time but his condition had deteriorated and he died due to cardiorespiratory failure. Blood cultures were later reported as growing Gp A streptococci and staphylococcus aureus species.
DISCUSSION: Toxic shock syndrome can initially present as vague symptoms only to lead to sudden acute deterioration of the patient. It should be differentiated from sepsis and can present much more acutely. Almost any kind of Gp A streptococcal and staphylococcus aureus infection from necrotizing fascitis to pneumonia can lead to toxic shock syndrome. It is caused by toxins, which activate cytokines that effect multiple organ systems. Acute cardiomyopathy can be one of the presenting signs of toxic shock and is caused by effect of cytokines on the myocardium causing stunning which is reversible once the patient recovers. The importance of physical examination can never be overemphasized as in the above case where the site of infection was missed on initial examination. Although supportive care and antibiotics is mainstay in treatment, drainage of the site of infection is very important. Immunoglobulin treatment has been shown to improve mortality and use of monoclonal antibodies and plasmapheresis is being studied. Although the toxins are different in streptococcal and staphylococcal toxic shock syndromes and the incidence of rash is more in staphylococcal infections the final pathway of cytokine activation is almost the same.

**DEBILITATING PAIN AND SPASMS IN AN OBESE WOMEN AFTER GASTRIC BYPASS SURGERY.** A. Atreja[1], J. Wojtowicz[1], W.S. Wilke[1], C. Abacan[2], C.K. Thomas-Golbanov[2]; [1]Cleveland Clinic Foundation, Cleveland Heights, OH; [2]Cleveland Clinic Foundation, Cleveland, OH *(Tracking ID #52278)*

LEARNING OBJECTIVES: 1. Recognize osteomalacia as a complication of Gastric Bypass surgery for morbid obesity. 2. Diagnose osteomalacia and differentiate it from other causes of hypocalcaemia and metabolic bone diseases. 3. Manage osteomalacia and micronutrient deficiency in malabsorption syndromes.
CASE INFORMATION: A 51 year-old-female presented with generalized pain and spasms for last 2 years; virtually restricting her to bed. She underwent gastrectomy with biliopancreatic diversion (BPD) 10 years before. Laboratory work up was remarkable for low serum calcium and Vit D3 levels.She also had a low serum level of selenium, vitamin A and Zinc. Bone scan revealed multiple areas of increased uptake. Patient improved markedly with calcitriol injections and was sent home on oral calcitriol, micronutrients and pancreatic enzyme supplements.
DISCUSSION: Osteomalacia is increasingly being realized as a late complication of Gastric Bypass surgery especially with BPD. A high index of suspicion is required for patients presenting with nonspecific symptoms like weakness, irritability and pain. Early diagnosis and prompt treatment may prevent further complications, some of which may be lethal.

**FULMINANT HEPATIC FAILURE AS THE PRESENTATION OF CRYPTOGENIC CIRRHOSIS IN A PATIENT WITHOUT A KNOWN LIVER DISEASE.** A. Babaki[1]; [1]St. Francis Hospital of Evanston, Evanston, IL *(Tracking ID #50541)*

LEARNING OBJECTIVES: Recognize Fulminant Hepatic Failure is a rare presentation of Cryptogenic Cirrhosis.
CASE INFORMATION: A 72-year-old female presented with jaundice, fatigue, loss of appetite and dark urine for one month. Past medical history: chronic obstructive pulmonary disease, stroke and hypothyroidism. Medications: bronchodilators, Paroxetine, Clonazepam, and Levothyroxine. A regular check up and measurement of liver enzymes six months back were normal. Physical examination: an afebrile, icteric woman without clinical evidence of ascites, flapping tremor, hepatosplenomegaly or stigmata of chronic liver disease. Laboratory tests on admission: normal CBC, electrolytes, glucose, BUN and creatinine. The liver function tests (LFTs): total bilirubin 18.6 micromol/L, direct bilirubin 26.3 micromol/L, total protein 7.7 g/dL, albumin 3.8 g/dL, alkaline phosphates (ALP) 316 U/L, ALT 899 U/L and AST 1055 U/L. Paroxetine and Clonazepam were discontinued. Anti-hepatitis B core IgM, hepatitis B surface antigen, antibody to hepatitis A virus IgM, anti-hepatitis C virus were normal, as were serum ceruloplasmin levels, alpha-1 antitrypsin and iron studies. Serologic tests for acute cytomegalovirus and Epstein-Barr virus infection were also negative. The acetaminophen level and TSH were normal. Levels of anti-SMA, ANA, anti-LKM, and antimitochondrial antibody were all normal. Nevertheless, bilirubin progressively increased with no significant change in ALT, AST or ALP. Ultrasound and CT Scan revealed gallstones andotherwise normal biliary tract. Doppler showed slow portal flow. Liver biopsy was done by laparascopy: the surface of the liver was nodular. Pathology showed cirrhotic changes and inflammation. After 12 days, patient had episodes of change of mental status. She was transfered to a transplant center where she expired before transplantation. The results of the autopsy showed Cryptogenic Cirrhosis (CC). The LFTs on day 12: total bilirubin 40.3 micromol/L, AST 609 U/L, ALT 509 U/L and ALP 179 U/L.
DISCUSSION: This case is unique since it describes a patient with FHF as the initial presentation of her Cirhhosis and there was no etiology found for her liver disease. The only medications with possible hepatotoxicity in this patients were Paroxetine and Clonazepam. The association between these medications and liver injury is controversial and very rare. In addition, drug-induced hepatotoxicity is usually reversible after the drug is withdrawn. These supports the diagnosis of Cryptogenic Cirrhosis. The clinical manifestation of CC is usually one of chronic and indolent one. Our patient showed a rapid, downhill course with FHF and death. No cases of CC have been reported to present with FHF. Therefore it is prudent that, in the management of Idiopathic FHF, one considers in, and assesses the patient for, possible Cryptogenic Cirrhosis and early referral for transplantation.

**AN UNUSUAL PRESENTATION OF LYMPHANGIOLEIOMYOMATOSIS: A DISEASE WITH BURGEONING INFORMATION.** B.W. Beasley[1], R.C. Kahatapitiya[2]; [1]Saint Lukes Shawnee Mission Health System, Kansas City, MO; [2]University of Missouri–Kansas City, Kansas City, MO *(Tracking ID #51765)*

LEARNING OBJECTIVES: 1) The LAM complication of chylous ascites can present as inguinal hernias. 2) CT of the chest is very specific for diagnosing LAM. 3) LAM cells stain HMB-45 positive. 4) LAM is caused by a mutation in the TSC2 gene, which affects Tuberin. 5) The prognosis of LAM, is not as devastating as was previously believed. 6) A histologic score is valuable in determining prognosis.
CASE INFORMATION: During surgery for bilateral inguinal hernias, a previously healthy, active 37-year-old woman was was noted to have chylous abdominal fluid. A follow up CT scan revealed fluid in her abdomen, and a pneumothorax, despite no symptoms of shortness of breath. A chest tube was placed and repeat CT scan with contrast showed changes in both lungs consistent with lymphangioleiomatosis, confirmed with lung biopsy. After pleurodesis, the chest tube was removed on day 3, the patient was begun on Provera and has been doing well.
DISCUSSION: LAM almost exclusively affects women of childbearing age. In the 2 largest series, the average age was 33 years; the presenting complaint was either slowly progressive dyspnea (50%), pneumothorax (41%), pulmonary hemorrhage (6%) or chylous effusion (3%). The initial CXR is rarely normal (<5%), showing reticulonodular and/or cystic changes in over 50% but can occasionally show pneumothorax alone. PFT's typically reveal normal or increased TLC, increased residual volume, reduced FEV1/FVC and decreased DLCO. In over 80% of patients, chest CT scans show multiple, bilateral, diffuse cystic air spaces, varying from a few mm to 2 cm and surrounded by uniformly thin walls. This appearance is distinctive. Lung biopsies may mimic numerous pathologic entities; most frequently idiopathic pulmonary fibrosis, emphysema or any disease that involves smooth muscle hyperplasia. The use of immunohistochemical staining with HMB-45, a monoclonnal antibody, has improved the ability to diagnose LAM with transbronchial biopsy. Progesterone may down-regulate estrogen receptors; though this is uncertain. Response to progesterone therapy does not correlate with estrogen or progesterone receptor status and anecdotally correlates with the presence of chylous effusions or ascites. Lung transplantation is an option of last resort and is not definitive. The two most recently reported series reveal survival at 8.5 years of 78% and 38%. A reduction in FEV1/FVC, an increase in TLC, and the presence of more mature and extensive lesions on pathologic examination are poor prognostic factors. A severity score, based on quantitative CT's estimation of the percentage of tissue involvement with cystic and infiltration has been associated with survival. Those with LHS-1 scores (<25%) had 10-year survivals of 100%, with 74.4% for LHS-2 (25-50%) and 52.4% for LHS-3 (>50%) scores. Increased macrophage hemosiderin is associated with higher LHS scores and worse prognosis. With increased understanding of the genetic basis of TSC, it is likely that the genetic defect or defects responsible for LAM will soon be characterized. A multicenter registry has been established to address the pathophysiology and epidemiology of the condition. With increasing research interest in LAM and greater awareness of the disease among clinicians, more effective therapies will emerge.

**LYMPHOMA PRESENTING AS AN ULCERATED OROPHARYNGEAL LESION: FLOW CYTOMETRY AND T-CELL ANTIGEN RECEPTOR GENE REARRANGEMENT ARE USEFUL IN MAKING THE DIAGNOSIS.** T.J. Beckman[1], W.G. Morice[1]; [1]Mayo Clinic, Rochester, MN *(Tracking ID #48696)*

LEARNING OBJECTIVES: 1. Recognize T-cell lymphoma in the differential diagnosis of an ulcerated oropharyngeal lesion. 2. Diagnose oropharyngeal lymphoma by flow cytometric immunophenotyping and T-cell antigen receptor gene rearrangement in the setting of negative surgical biopsies.
CASE INFORMATION: A 66-year-old male presented with the complaint of pharyngitis and weight loss. Physical examination revealed ulcerated lesions in the posterior oropharynx. Laboratory evaluation demonstrated a microcytic anemia, an absolute lymphocytosis, and an elevated ESR. Throat cultures grew only mixed oropharyngeal flora, and the patient did not respond to courses of broad-spectrum antibiotics. A MRI of the neck showed no definitive evidence of malignancy. The patient underwent surgical biopsies of the oropharynx on three occasions, and each time the pathological diagnosis was acute and chronic inflammation without evidence for malignancy. To evaluate for a lymphoproliferative disorder, flow cytometric immunophenotyping and T-cell antigen receptor gene rearrangement studies using Polymerase Chain Reaction (PCR) were performed on peripheral blood. These studies revealed evidence of a clonal T-cell population supporting the diagnosis of a peripheral T-cell lymphoma. Similar studies were then performed on an oropharyngeal biopsy specimen, revealing the same clonal T-cell population in the oropharynx.
DISCUSSION: T-cell lymphoma presenting in the oropharynx is unusual. Cytological analysis and immunophenotyping have been shown to accurately diagnose peripheral T-cell lymphoma. Additionally, the importance of flow cytometric immunophenotyping in complimenting the diagnosis of peripheral T-cell lymphoma by Fine Needle Aspiration (FNA) has been demonstrated. This case highlights the potential difficulty in diagnosing T-cell lymphoma on biopsy specimens of the oropharynx, and it emphasizes the utility of ancillary immunophenotyping and molecular genetic studies in achieving a diagnosis.

**ECTOPIC ADRENOCORTICOTROPIC HORMONE (ACTH) SYNDROME RESULTING IN NOCARDIOSIS AND ACUTE RESPIRATORY FAILURE.** G.A. Beinart[1], H. Hollander[1], R. Rao[1]; [1]University of California, San Francisco, San Francisco, CA *(Tracking ID #51406)*

LEARNING OBJECTIVES: 1) Recognize the increased susceptibility to opportunistic infections such as Nocardiosis in hypercortisol states. 2) Diagnose and treat Ectopic Adrenocorticotropic Hormone (ACTH) Syndrome, Nocardiosis, and small cell lung cancer. 3) Recognize the diverse pulmonary manifestations of Nocardiosis.
CASE INFORMATION: A: A 68 year-old male with PMH of hypertension and COPD was transferred for evaluation of new onset respiratory failure. One month previously, he underwent uncomplicated rotator cuff surgery. FU a few days later revealed a potassium of 1.7 meq/L; prompting hospitalization for K replacement. One week later, the patient presented with

respiratory failure (paO2: 36 mmHg on 4 L O2). CXR and CT showed a RLL infiltrate with pretracheal lymphadenopathy, a VQ scan was low probability, bronchoscopy with biopsy was negative and an echo showed an LVEF of 60%. Despite BiPAP ventilation and antiobiotics, his paO2 remained in the low 60s. In addition the patient had intractable HTN despite 5 anti-hypertensive medications and persistent hypokalemia, metabolic alkalosis and glucose intolerance. A low dose dexamethasone test was positive for hypercortisolism, 24-hr urine cortisol was 4,322.1 ug (nl 2.0 – 42.4). Serum cortisol level was 82 ug/dL (nl 8 – 25 ug/dL) and ACTH level was 519 ng/L (nl 3 – 52 ng/L). An abdominal CT was negative. On day 7, the patient was transferred to our institution. A CXR showed diffuse bilateral interstitial infiltrates (Fig. 1). A repeat chest CT showed bilateral lower lobe consolidation and a cavitating lesion (Fig. 2). Sputum gram stain revealed filamentous gram-positive rods with partial acid fast staining; culture grew Nocardia farcinica. A bone marrow biopsy showed a neuroendocrine tumor c/w small cell lung carcinoma. Despite aggressive management, the patient died on day 23.
DISCUSSION: Severe immunocompromise, in this case due to severe hypercortisolism caused by ectopic ACTH production, can result in Nocardial infection since cell-mediated and T-cell response play an important role in the host defense to Nocardia. This patient had the classic manifestations of ectopic ACTH syndrome with intractable HTN, hypokalemia, and metabolic alkalosis. The extreme elevations in both ACTH and cortisol in the setting of metastatic small cell lung cancer confirmed the diagnosis. In one review of opportunistic infections associated with hypercortisolism, Aspergillus, Cryptoccus, Pneumocystis and Nocardia predominated. Pulmonary nocardiosis has a diverse presentation, in one review, 83% had nodules, 33% had infiltrates, and 33% had cavitations. Differentiation of Nocardia farcinica from other members of Nocardia is important because of N. farcinica's propensity for causing disseminated infection and antimicrobial resistance. In addition to early and appropriate antibiotic therapy, resolution of the hypercortisol state helps treat the Nocardiosis. Chemotherapy was initiated to treat the small cell lung cancer and decrease ACTH production while ketoconazole was administered to inhibit steroidogenisis. While the patient showed laboratory improvement with decreased serum cortisol levels, the aggressive nature of the underlying disease led to the patient's demise. (Edited for length).

Figure 1 – Chest Radiograph

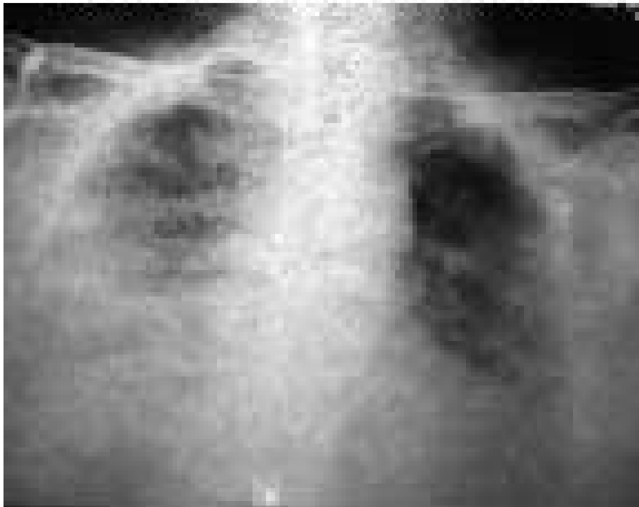
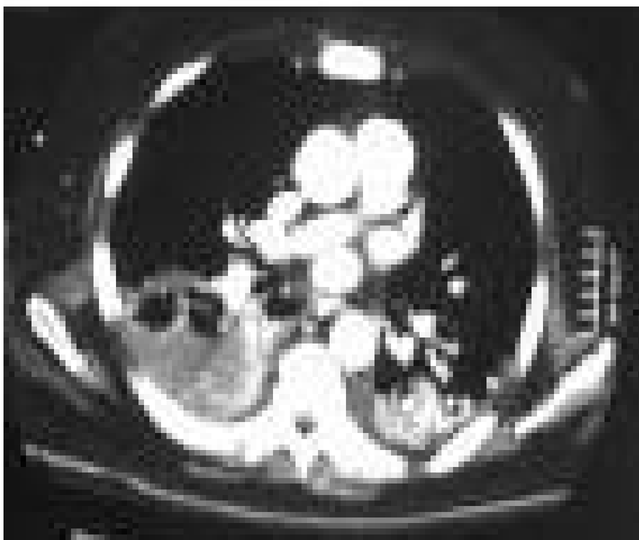


Figure 2 – Chest Computed Tomography



**A CONFUSED MAN ON THE INPATIENT UNIT WHO REFUSES ANTICOAGULATION FOR A PROSTHETIC AORTIC VALVE.** D. Bekelman[1]; [1]Johns Hopkins University, Baltimore, MD *(Tracking ID #52364)*

LEARNING OBJECTIVES: 1) Appreciate how to balance the ethical principles of respect for autonomy and beneficence in a case of treatment refusal; 2) understand the general indications and types of treatment allowed in an involuntary commitment; 3) recognize when an emergency guardianship may be useful.
CASE INFORMATION: A 59 year-old man on anticoagulation for a prosthetic aortic valve underwent evacuation of an intracranial hemorrhage that occurred after head trauma. After surgery, he demanded to leave the hospital and refused anticoagulation. He was unable to explain why he was making these choices and did not appear to appreciate the risk of death. Mental status exam showed full orientation with impaired attention, verbal memory, word finding, insight, and judgment. He had perseverating concerns about not being able to see his dog, and at one point said he thought his dog was sleeping "outside" and needed his help. He was diagnosed with delirium. A psychiatry consultant initiated commitment proceedings to keep him in the hospital involuntarily and to manage his delirium. He was committed, but only psychiatric treatment could be administered involuntarily, not medical treatments. He continued to refuse medical treatment and the medical team asked the court for an order permitting anticoagulation against his wishes. The court did not grant this request. Over a week, his confusion resolved and he eventually consented to anticoagulation prior to leaving the hospital.
DISCUSSION: Treatment refusal during confusional states (delirium) is common in the inpatient setting. Consideration of ethical principles often assists in guiding management of treatment refusal. In this case, we wanted to respect and promote his autonomy while pursuing the beneficent goals of treating his delirium and the risks of thrombi and emboli from his prosthetic valve. Although court approval was sought for involuntary medical treatment under the commitment, we later felt that an emergency guardianship would have been a better approach given his impaired decision-making capacity. A commitment is generally used for someone with mental illness who is acutely dangerous (homicidal or suicidal). Involuntary psychiatric treatment is authorized under the commitment. An emergency guardianship would have been more ethically and legally appropriate given the medical condition and impaired decision-making capacity. The patient was lucky that he endured no adverse thromboembolic events during his period at risk.

**A WOMAN WHO INJESTS A PIECE OF FORMICA TO HARM HERSELF BUT REFUSES ENDOSCOPY.** D. Bekelman[1], J. Carrese[1]; [1]Johns Hopkins University, Baltimore, MD *(Tracking ID #52374)*

LEARNING OBJECTIVES: 1) Consider the ethical issues of respect for autonomy and beneficence in a case of treatment refusal; 2) understand how a patient's autonomy can be impaired by mental illness.
CASE INFORMATION: A 27-year-old woman under involuntary commitment was transferred from a state facility after swallowing a piece of formica. She had mild substernal chest discomfort. Past history included dysthymia, borderline personality disorder, and multiple foreign body ingestions with one emergent thoracotomy for esophageal perforation. Exam showed a pulse of 110. She was alert, fully oriented, logical and without hallucinations or delusions. She initially denied suicidal ideation. Mood was "anxious." A chest xray did not reveal the location of the object and demonstrated no evidence of perforation. She refused recommended endoscopy and subsequently was admitted to an internal medicine inpatient ward. She admitted to the primary team that she had intended to harm herself because "life was no longer worth living" and she wished to be "gone" before her next birthday. The court was petitioned for an order granting involuntary endoscopy given the dangerousness of the situation, the self-harming intent, and the claim that she had impaired decision-making capacity. The court refused this request. She was confined to her room and restrained when unsupervised. After several days in the hospital, she consented to endoscopy. The object was recovered uneventfully and she was discharged back to the state facility.
DISCUSSION: This case involved refusal of medical treatment after a suicide attempt. She came from a state mental institution under commitment for depression and borderline personality disorder. The commitment included involuntary treatment for mental illness, not medical illness, and thus involuntary endoscopy was not permitted. She had some degree of decision-making capacity since she was able to communicate a choice and understand the risks and benefits of treatment and refusal. However, her mental illness impaired her ability to appreciate the consequences of her decision to refuse treatment. After further consideration, we felt that involuntary endoscopy was not ethically justified given her level of decision-making capacity. Restraint and seclusion seemed appropriate.

**PULMONIC CRYPTOCOCCOMA IN THE IMMUNOCOMPETENT PATIENT.** G. Booth[1], I. Ziment[1]; [1]UCLA-San Fernando Valley Program, Sylmar, CA *(Tracking ID #50913)*

LEARNING OBJECTIVES: 1. The importance of taking a good occupational history. 2. Treatment options for patients who present with massive cryptococcomas of the lung.
CASE INFORMATION: A 28 yo caucasian male without significant pmh presents with 2 days of acute progressive right sided pleuritic chest pain and shortness of breath. He reported 8/10 stabbing right upper field thoracic pleuritic pain, with similar, but milder symptoms for the last 6 months. He reports 1 day of rapidly progressing shortness of breath accompanied with fevers to 103 degrees F. Further history revealed drenching night sweats for several weeks and a 17 pound weight loss over the last 6 months. The patient denies any TB contacts and was PPD negative in the hospital. The patient reports smoking 1 pack of cigarettes a day for 12 years. He uses marijuana occasionally and has used cocaine in the past but denies intravenous drug use.

The patient reports drinking approximately one 6-pack of beer on weekends. He did have sex with a prostitute in Tijuana, Mexico about 6 months ago but reports no other travel history. His family history is significant for leukemia (father). The patient is plumber and frequently works in attics and basements. Moreover, some of these work sites confer significant exposure to birds' nests and droppings. The review of systems was non-contributory. On exam the patient was febrile to 38.3 C, BP 122/60, pulse 78 and RR 18. The patient was thin and anxious appearing. No peripheral lymphadenopathy. The lungs were clear but there were decreased breath sounds in the right upper thoracic area. There was no egophony or fremitus noted. The heart was regular and without rubs or gallops. The abdomen was soft and benign and the testicular exam was normal. Basic chemistries and cbc were normal. The chest x-ray revealed a large dense right upper lobe mass. The CAT scan of the chest showed a 7×7 cm mass in the right upper lobe adjacent to the pleura that abutted the mediastinum and right mainstem bronchus. No central lymphadenopathy was noted. The patient was intially treated with broad-spectrum antibiotics for a postobstructive pneumonia and ruled out for tuberculosis. He continued to have fevers between 38 – 39 C. The patient had a bronchoscopy with biopsy that grew budding yeast consistent with cryptoccocus. The patient had a serum crypto antigen titer of 1:512. HIV test was negative and a subsequent lumbar puncture did not reveal neurological involvement. The patient was diagnosed with a cryptococoma and was started on fluconazole 400 mg daily with significant improvement in symptoms.
DISCUSSION: This case demonstrates an unusual presentation of a disseminated fungal infections in an immunocompetent patient. The occupational history was crucial in revealing important clues necessary to make this diagnosis of ornithosis. Surgical vs. medical therapies are discussed.

**HYPERCALCEMIA AND INTRAHEPATIC CHOLESTASIS MASQUERADING AS AUTOIMMUNE CHOLANGITIS: AN UNUSUAL PRESENTATION OF HODGKIN'S DISEASE.** R.C. Brooks[1]; [1]University of Pittsburgh, Pittsburgh, PA *(Tracking ID #51936)*

LEARNING OBJECTIVES: 1) Recognize infiltrative granulomatous and neoplastic diseases as causes of intraheptic cholestasis. 2) Diagnose hypercalcemia due to excess calcitriol production. 3) Recognize tumor production of calcitriol as a cause for hypercalcemia of malignancy seen with lymphomas.
CASE INFORMATION: A 48 year old white male on no medications presented with a 6 month history of anorexia, 25 pound weight loss, and generalized weakness. On examination, he was afebrile, 140 lbs, 5′10″. He had mild right upper quadrant tenderness and a palpable spleen tip, but an otherwise normal exam, including a normal liver span and no lymphadenopathy. Laboratory testing showed abnormal liver function tests, with Alk Phos 2048, GGT 446, total bilirubin 1.8, and direct bili 0.8, but normal AST and ALT. LDH was low at 81. Albumin was low at 2.7, with otherwise preserved synthetic function. He had a hypoproliferative microcytic anemia (Hgb 9.9), with no blasts on smear. A CT scan of the abdomen showed extensive retroperitoneal adenopathy, an ill-defined 1.5 cm hepatic mass, mild splenomegaly, and no extra-hepatic biliary dilatation. CT-guided biopsies of the liver and the hepatic mass revealed granulomatous inflammation and fibrosis of the portal tracts consistent with primary biliary cirrhosis (PBC). Serum antimitochondrial antibody was negative. The patient was hypercalcemic, with serum calcium 10.4 and ionized calcium 6.7. Serum PTH (intact) was normal and PTH-rp was undetectable. SPEP and UPEP showed no monoclonal bands. Whole body bone scan and CT scan of the chest were normal. Serum ACE level was high at 72. Serum calcidiol was normal at 27, and calcitriol was upper normal at 41. Urine calcium excretion was elevated. TSH and cosyntropin stimulation tests were normal. The patient underwent laparoscopic biopsy of the largest retroperitoneal lymph node, a 4.5 cm iliac node, which showed nonspecific reactive histology. A bone marrow aspirate and biopsy revealed a hypercellular marrow, with no evidence of a lymphoproliferative disorder. A repeat laparascopic retroperitoneal lymph node biopsy was consistent with Hodgkin's disease, lymphocyte predominant. Re-evaluation of the liver biopsy with special stains was consistent with Hodgkin's disease of the portal tracts.
DISCUSSION: Isolated or disproportionately elevated serum levels of hepatic alkaline phosphatase can be seen in a variety of diseases, including early cholestatic liver disease (e.g. PBC, sclerosing cholangitis), infiltrative diseases of the liver (e.g. sarcoidosis, tuberculosis), and extrahepatic tumors. Diagnostic workup includes imaging studies, liver biopsy, and possibly ERCP. While most hypercalcemia of malignancy is due to bony metastases or PTH-rp production, lymphoma cells can produce calcitriol directly causing hypercalcemia with a mechanism similar to granulomatous diseases. Inappropriately high calcitriol levels are seen, and a good therapeutic response to steroid treatment is characteristic.

**THE HYPER HYPOTHYROID PATIENT.** E.D. Brownfield[1]; [1]Emory University, Atlanta, GA *(Tracking ID #50865)*

LEARNING OBJECTIVES: 1. Recognize thyroid illness as a cause of amenorrhea in a healthy woman. 2. Recognize that prolonged post-pill amenorrhea is not normal. 3. Outline the differences between primary and secondary hypothyroidism.
CASE INFORMATION: A healthy 31-year-old woman presented with lack of menses for four months after discontinuing oral contraceptives (OCs). She had been on OCs for eight years and discontinued them in order to become pregnant. The absence of menses during the first one to two months after discontinuing the pill was considered normal. When her menses did not resume, a TSH was drawn and returned abnormally low at <0.1 uIU/ml. Everyone who knew the patient assumed the patient was hyperthyroid, as she was thin, very energetic and always in a great mood. A complete thyroid panel drawn one week later confirmed the result of the TSH of <0.1 uIU/ml, however to everyone's surprise the free T4 was 0.5 ng/dL. Other lab tests including a prolactin, estradiol, LH, FSH, testosterone and pregnancy test were all normal. Since the patient clinically was euthyroid, the test was again repeated two weeks later to confirm a diagnosis of hypothyroidism. At that time the TSH returned at 3.64 uIU/ml and the free T4 was < 0.5 ng/dL. Three weeks later the TSH was 13.75 uIU/ml and the free T4 < 0.5 ng/dL. Anti-TPO antibody and TSI levels were 1.3 IU/ml and 105, respectively. Her thyroid at that time was noted minimally enlarged from prior visits. With the increase in TSH, a brain MRI was not performed. She was started on 100 mcg of levothyroxine. Six weeks later a repeat TSH was <0.1 uIU/ml and free T4 was 1.3 ng/dL. The levothyroxine was decreased to 75 mcg/day. The patient never had any symptoms or clinical signs of hypothyroidism. During the six months of thyroid testing and treatment, she still did not have a period until progesterone induced a withdrawal bleed.
DISCUSSION: Post-pill amenorrhea was previously thought to be common but is no longer since the advent of low-dose OCs. Thus, women who do not menstruate three to six months after discontinuing an OC should undergo the same evaluation for amenorrhea as any woman with amenorrhea. In addition to ruling out pregnancy with a serum bHCG, minimal lab testing should include measurement of serum prolactin, TSH and FSH to rule out hyperprolactinemia, thyroid disease and ovarian failure. Primary hypothyroidism is a cause of secondary amenorrhea. Clinical presentation of patients with hypothyroidism is highly variable. A low free T4 is seen in both primary and secondary hypothyroidism. A high TSH is indicative of a primary disorder, whereas a low TSH should prompt a search for a secondary process. In this patient, what initially appeared to be secondary hypothyroidism turned out to be most likely a primary process. Subacute lymphocytic thyroiditis might be a plausible diagnosis, explaining the initial low TSH as the pituitary thyroid axis was recovering from an initial hyperthyroid state.

**A PATIENT WITH MULTIPLE LARGE NEOPLASTIC LUNG NODULES AND HIGH SERUM BETA-HCG.** L.S. Budde[1], V. Martin[1], A. Rahman-Jazieh[1]; [1]University of Cincinnati, Cincinnati, OH *(Tracking ID #50939)*

LEARNING OBJECTIVES: 1. Recognize that multiple large neoplastic lung nodules, even in the absence of an alternative primary tumor, may not be primary lung cancer. 2. Utilize serum beta-HCG levels and other diagnostic tests to help distinguish primary lung cancer from germ cell tumors and undifferentiated carcinomas. 3. Recognize that different treatment is indicated for germ cell tumors and undifferentiated carcinomas than for primary lung cancer.
CASE INFORMATION: A 55-year-old male presented with shortness of breath and jerking of his left arm and leg. Pertinent exam findings included hypoxia, slurred speech, decreased breath sounds in the right upper lobe, testicular atrophy, and bilateral Babinski responses. Serum electrolytes were normal. Chest x-ray revealed multiple large lung nodules bilaterally in the upper lobes. The serum beta human chorionic gonadotropin (HCG) was 29,684 mIU/ml. Serum alpha-fetoprotein was normal. Head CT revealed large bilateral frontal masses with surrounding edema, but no midline shift was identified. Decadron therapy was started. One day later the HCG rose to 40,000. Chest CT revealed multiple large cavitating lesions. Testicular ultrasound and abdominal/pelvic CTs were unremarkable. Transbronchial lung biopsy was consistent with poorly differentiated adenocarcinoma but inconclusive for metastatic adenocarcinoma of unknown primary site. Biopsy staining for HCG was negative, and cytokeratin markers could not confirm a lung etiology. Chemotherapy was initiated with cisplatin, etoposide and bleomycin, a treatment commonly used for extragonadal germ cell tumors. Brain XRT was also administered. In one week, the patient's mental status improved and the HCG dropped to 6,000, and then to 38 at six weeks. Repeat chest CT showed a marked decrease in tumor load.
DISCUSSION: Distinguishing primary lung cancer from cancers of other etiologies can prove challenging. Extragonadal germ cell tumors have a propensity to metastasize rapidly into multiple pulmonary nodules. HCG is present in the serum or biopsies of 5 – 14% of patients with lung cancer but are usually not markedly elevated. In the context of lung neoplasms, high serum HCG levels may be found in patients with large cell carcinomas, choriocarcinomas or extragonadal germ cell tumors. The accepted chemotherapeutic regimen for extragonadal germ cell tumors and choriocarcinomas will effectively treat lung adenocarcinomas and large cell carcinomas, but the converse is not true. For patients who have multiple lung nodules and in whom metastatic disease cannot be excluded, physicians should consider additional studies to confirm the etiology of the neoplasm. Serum and tissue HCG, AFP, immunohistochemical and genetic studies, such as isochromosome 12(p), may aid the clinician in selecting the optimal chemotherapeutic regimen.

**THE LADY'S NOT CRAZY: DIZZINESS MISDIAGNOSED.** R. Buranosky[1], M.A. Mcneil[1], W.N. Kapoor[1]; [1]University of Pittsburgh, Pittsburgh, PA *(Tracking ID #52347)*

LEARNING OBJECTIVES: 1) Distinguish Postural Tachycardia Syndrome (POTS) from other causes of dizziness in young women. 2) Outline the potential pathophysiologic mechanisms of POTS. 3) Manage the interdisplinary components of treatment of POTS.
CASE INFORMATION: The patient was a 28 year old healthy female with the chief complaint of progressive dizziness, lightheadedness, and chest pressure. In August 2000, the patient, a marathon runner, had a brief episode of feeling cold, clammy, diaphoretic, dizzy with a sense of the room spinning, and nausea. After experiencing similar episodes over the next couple of months, she was diagnosed with labyrinthitis and treated unsuccessfully with meclizine and diazepam. By the end of November, her dizziness was present at all times. Exacerbated with standing, the dizziness was associated with chest pressure, diaphoresis, nausea and weakness. Neurologic, endocrinologic, otorhinolaryngolic, and cardiac workups were all negative. Her symptoms increased in severity and frequency including a syncopal event in early March 2001. By late March, she was wheelchair-dependent. She was seen at Mayo Clinic where a tilt-table test was consistent with POTS. She was started on fluoxetine, metoprolol, a program of resistance training, and a high fluid/ high salt diet.
DISCUSSION: POTS is the most common disorder of blood pressure regulation after essential hypertension and occurs with a 10:1 predominance in women of childbearing age. Although the clinical history dates back to World War I, the diagnosis is largely unknown by physicians. Often misdiagnosed as psychosomatic, it can cause severe emotional and financial disability. The hallmark of POTS is exaggerated orthostatic tachycardia. Unlike other causes of orthostatic hypotension, such as neurocardiogenic syncope or autonomic failure, the tachycardia is not associated with profound hypotension. Predominant symptoms are linked to a decrease in cerebral perfusion and include the following: extreme fatigue, lightheadedness, exercise intolerance, cognitive impairment, chest pain, headaches, and weakness. Theoretical mechanisms for disease are as follows: 1) partial sympathetic dennervation, especially in the legs, with maintained, or even overactive, cardiac sympathetic activity, 2) impaired synaptic norepinephrine (NE) clearance, 3) decreased cardiac vagal baroreflex sensitivity, and 4) inappropriate vasoconstriction of cerebral vasculature. Treatment includes the maintenance of

cerebral perfusion with b-blockers to decrease the tachycardic response, resistance training to increase venous return, diet of high fluid/ high salt intake to maintain intravascular volume, and sometimes florinef and mididrine. SSRI's have been shown to help the non-orthostatic symptoms of chest pressure and fatigue. With early diagnosis and multi-modality treatment, a majority of patients will eventually recover.

**GOODPASTURE'S SYNDROME VERSUS WEGENER'S GRANULOMATOSIS: MAKING A DIAGNOSIS WHEN THE SEROLOGIES OVERLAP.** S. Burugu[1], A. Hiremath[1], R.D. Hobbs[1]; [1]Oakwood Healthcare System, Dearborn, MI *(Tracking ID #52218)*

LEARNING OBJECTIVES: To recognize the dilemma and the explanatory mechanisms involved in differentiating Wegener's Granulomatosis from Goodpasture's Syndrome in those cases where the serologies overlap.
CASE INFORMATION: A 72 year-old female was admitted following four months of dyspnea, hemoptysis, oliguria and edema. Rales were present. Her BUN and creatinine were respectively 80 mg/dl and 5.4 mg/dl. Hemoglobin was 7.0 g/dl. Urinalysis revealed proteinuria with erythrocyte casts. A Chest x-ray showed diffuse pulmonary infiltrates. A tentative diagnosis of rapidly progressive glomerulonephritis was made. Suspected etiologies included Goodpasture's Syndrome, Wegener's Granulomatosis and SLE. Hemodialysis, glucocorticoids and cyclophosphamide were started. Serology was positive for both P-ANCA and Anti-GBM antibodies. Although these findings were compatible with both diseases, a renal biopsy was consistent with ANCA-associated pauci-immune glomerulonephritis and suggestive of Wegener's Granulomatosis.
DISCUSSION: Although Anti-GBM antibodies and ANCA are respectively associated with Goodpasture's Syndrome and Wegener's Granulomatosis there can be overlap between these studies. 20% – 30% of patients with serologically proven anti-GBM disease display ANCA as well. A plausible explanation for the dual antibodies is that ANCA-associated damage to the GBM may uncover previously "hidden" antigens. Exposing these antigens could induce the formation of antibodies to the GBM. In such "mixed cases," serologic markers are insufficient for diagnosis and the final answer rests on renal biopsy.

**SEVERE HYPOGLYCEMIA FROM CLARITHROMYCIN – SULFONYLUREA DRUG INTERACTION.** R.C. Bussing[1]; [1]Southern Illinois University, Springfield, IL *(Tracking ID #51813)*

LEARNING OBJECTIVES: 1. Recognize the potential for a severe drug-drug interaction between clarithromycin and sulfonylurea.
CASE INFORMATION: Two cases are presented in which elderly men with type 2 diabetes treated with diet and sulfonylureas receive clarithromycin for "bronchitis". In both cases, severe hypoglycemia necessitating hospitalization occurred within 48 hours. Features common to both cases included age >70, impaired renal function, identical doses of clarithromycin, concomitant aspirin usage, concomitant atherosclerotic heart disease and hypertension, and unresponsiveness occurring within 48 hours of instituting clarithromycin.
DISCUSSION: Clarithromycin inhibits the hepatic microsomal CYP3A4 isoenzyme as well as intestinal P-glycoprotein. CYP3A4 is involved in the biotransformation of second-generation sulfonylureas glipizide and glyburide. The proposed mechanism for the hypoglycemia is enhanced action of sulfonylureas due to decreased metabolism because of drug competition for the active site on CYP3A4. In both cases decreased renal clearance of the sulfonylurea likely played a role.

**THE ASSOCIATION OF ASTHMA AND A WORSENING LEG ULCER: A CASE OF VASCULITIS IN PRIMARY CARE.** S. Cykert[1], B. Cakir[2], D. Talbot[2]; [1]University of North Carolina at Chapel Hill and the Internal Medicine Program, Moses Cone Hospital, Greensboro, NC; [2]Internal Medicine Program, Moses Cone Hospital, Greensboro, NC *(Tracking ID #52083)*

LEARNING OBJECTIVES: 1. Recognize the possibility of vasculitis in a primary care patient presenting with a disparate constellation of symptoms – severe asthma, non-healing leg ulcer, and neuropathy. 2. Be aware of the unusual association of asthma, Churg-Strauss Syndrome (CSS) and leukotriene receptor antagonists (LTA).
CASE INFORMATION: A 71 year-old African-American woman was admitted to the hospital with a 2 month history of a non-healing leg ulcer despite good skin care and periods of antibiotic therapy. Her past medical history included type II DM, CHF, allergic rhinitis, and asthma. Her asthma was labile and steroid dependent until 2 yrs prior to admission at which time she was started on zafirlukast. On further questioning, the patient revealed a six month history of malaise and 40 lb. weight loss. On exam, she had a 2 cm stage III ulcer on the medial aspect of the right ankle. Diminished sensation in both feet and left foot drop were observed. White count was 11,100 with 60% eosinophils. EMG revealed mononeuritis multiplex. Sural nerve biopsy demonstrated vasculitis. Zafirlukast was stopped and the patient was put on prednisone 60 mg qd. One week later foot strength was near normal and eosinophilia resolved (WBC 4,200 Eos 2%).
DISCUSSION: CSS is a rare form of small vessel vasculitis. American College of Rheumatology diagnostic criteria for CSS are asthma, eosinophilia >10%, mononeuropathy, paranasal sinus abnormality, nonfixed pulmonary infiltrates, and extravascular eosinophils on biopsy. Presence of four of these criteria yields a diagnostic sensitivity of 85% and a specificity of 99.7%. Constitutional symptoms such as fatigue and weight loss and cardiac involvement, including CHF, are common. Necrotic skin changes are not unusual in small vessel disease. Etiology of CSS is unknown, but there are several reports of drug-associated CSS including associations with LTA's. Because of the similar incidence of CSS in asthmatics treated with and without LTA's, it has been postulated that the recognition of CSS in asthmatic patients on LTA therapy is related to reduced steroid requirements for pulmonary symptoms. Therefore, systemic manifestations of CSS are unmasked. Although CSS, specifically, is a rare disease, with this case, we hope to illustrate that in the setting of asthma and multiple, disparate signs and symptoms, the broad diagnostic category of serious vasculitic illness should be considered.

**T WAVE WITH A TWIST.** C. Caraang[1], W. Ching[1], E.F. Yee[1], A.G. Gomez[1]; [1]UCLA/San Fernando Valley Program, Sepulveda, CA *(Tracking ID #51787)*

LEARNING OBJECTIVES: 1. Recognize that symmetric T-wave inversions in a patient with several cardiac risk factors do not necessarily point to myocardial ischemia. 2. Identify causes of global T-wave inversion. 3. Discuss the significance of T-wave pseudonormalization (reversion of the T-wave from inverted to upright) during exercise.
CASE INFORMATION: A 47 y/o male with HTN, DM, hypercholesterolemia, and tobacco use presented to the E.R. with mild blurry vision $\times$ 1 week. Physical exam was notable for a BP of 160/103 and moderate obesity. Lab revealed mild anemia and a glucose of 800. An ECG was significant for mildly deep, symmetrically inverted T-waves in all leads except V1, avL, and avR. The rate, rhythm, intervals, and morphologies of the complexes were normal. Corroborative evidence for ischemia with troponin and CK-MB was negative. Cardiothoracic ratio was <50% on CXR. His blurry vision was deemed secondary to hyperglycemia and sent home. He subsequently underwent a treadmill where he achieved 12 mets without chest pain but ekg tracings showed global pseudonormalization of the T-waves during exercise. Myocardial perfusion scan was normal with a calculated EF of 65%.
DISCUSSION: Global T-wave inversion, present in 100 in 30,000 serial ECG's, is largely due to myocardial ischemia in 95% of cases. Global T-wave inversions in other conditions, namely CNS disorders, pheochromocytoma, and cocaine abuse, seem to suggest that they can also be catecholamine-mediated. Presence in myocarditis, pericarditis, metastatic tumor in the heart, recent endarterectomy, HCM, vagotomy, and electrolyte abnormalities suggest electrical vectorial or myocardial potassium channel alteration. The significance of T-wave pseudonormalization with exercise has been debated. Though found to be a sign of ischemia, up to 57% of pts with T-wave normalization do not have evidence of significant heart disease. The cause of this patient's global T-wave abnormality was never determined, but with a negative evaluation for ischemia, the most plausible explanation is that he had a hypercatecholamine state due to anemia or hyperglycemia. It could have also been related to other factors since such patients with asymptomatic T wave inversions have a higher prevalence of obesity, htn, and hypercholesterolemia. This case illustrates that striking T-wave abnormalities in patients with several cardiac risk factors is not necessarily due to myocardial ischemia. The ECG changes do not in themselves portend a poor prognosis; long-term survival depends primarily on the underlying disease process.

**DOXYCYCLINE INDUCED ESOPHAGEAL ULCER.** L. Carlson[1], M.J. Krasnoff[1]; [1]Dartmouth-Hitchcock Medical Center, Lebanon, NH *(Tracking ID #51312)*

LEARNING OBJECTIVES: 1. Recognize pill-induced esophageal injury as a cause of odynophagia and retrosternal pain. 2. Manage pill-induced esophageal ulceration.
CASE INFORMATION: A 19-year-old previously healthy man presented with odynophagia of 8 days duration. He first noted painful swallowing when it woke him from sleep. Three weeks previously he began doxycycline 100 mg BID for the treatment of acne vulgaris. While he took the doxycyline with at least a full glass of water, he frequently took the evening dose at bedtime. The patient experienced two types of pain. The odynophagia was progressive and severe, with each swallow of solids or liquids. The chest pain was localized to the right of mid-line at the fourth intercostal space anteriorly. The chest pain pulsated with his heartbeat, most intensely while lying on his side, and was exacerbated by deep inspiration. He denied fevers, chills, heartburn, nausea, vomiting, or change in bowel habits. There was no recent travel. He appeared in moderate distress with a normal physical exam. An esophagastroduodenoscopy revealed a small, clean, well-circumscribed ulcer in the distal esophagus. He was advised to stop the doxycycline and to use sucralfate suspension to facilitate healing. Within a few days, the patient's symptoms had entirely abated.
DISCUSSION: Pill-induced esophageal injury has been increasingly recognized. The most commonly implicated medications include antibiotics (especially doxycycline), anti-inflammatory agents (especially aspirin), and assorted other medications such as potassium chloride, quinidine, iron compounds, and alendronate. The hypothesized mechanism for most esophageal injuries is the direct localized caustic action of the pill contents when there is prolonged contact with esophageal mucosa. Resulting ulcers are often found in areas where the esophageal lumen is somehow narrowed such as by the aortic arch, an enlarged left atrium, or the GE junction. Ingestion of the medication with an inadequate volume of liquid, taking the medication just before sleep, and age greater than 70 are several of the proposed risk factors. Typically patients present with a rapid onset of odynophagia that may be very severe. Upper endoscopy is the most useful diagnostic test although it is needed only if multiple illnesses are on the differential, such as reflux esophagitis, infectious esophagitis, or malignancy. A small discrete ulcer is the typical injury pattern. However, alendronate-induced esophagitis may be more diffuse thereby raising the possibility of an alternate mechanism for its deleterious effects. The primary intervention is removal of the offending agent and most ulcers heal within a few days. If the use of the medication is unavoidable, liquid forms may be better tolerated. It is unclear whether adjunctive measures such as antacids, proton pump inhibitors, or sucralfate are actually helpful, unless reflux disease is a contributing factor. Sucralfate has theoretical advantages over other medications due to its protective coating effects. Preventive measures are warranted when prescribing medications known to cause direct esophageal injury.

**INCIDENTAL FINDING OF GIANT RETROPERITONEAL SCHWANNOMA AFTER MINOR TRAUMA.** P. Chahal[1], S. Al Saghbini[2]; [1]St. Francis Hospital, Evanston, IL; [2]St. Francis Hospital, Evanston, IL *(Tracking ID #52320)*

LEARNING OBJECTIVES: Ancient Schwannomas are exceedingly rare, benign, small, asymptomatic, slow growing tumors. Retroperitoneal location of these tumors is very rare.
CASE INFORMATION: 31 year old african american with past medical history of type 1 diabetes came with c/0 acute severe left upper quadrant pain and multiple episodes of vomiting after he accidentally hit himself with his elbow while playing soccer. Patient denied any other complaints. on physical examination he was hemodynamically stable, afebrile with left upper quadrant 6 $\times$ 6 cm smooth, firm, highly tender, nonpulsating mass. Upper gi

endoscopy revealed extrinsic compression of the stomach and duodenum without any mucosal lesion. Abdominal ct scan with contrast showed a huge left spherical mass in the retroperitoneum with intrinsic calcification and mixture of densities. Spleen and kidneys were normal. Exploratory laprotomy with complete excision of the 14×12 cm mass was done which was confirmed by pathology as an encapsulated neurilemoma with degenerative changes and recent hemorrhage consistent with ancient schwannoma.
DISCUSSION: Schwannomas are rare, slow-growing benign tumors derived from the schwann cells of the nerve sheath of peripheral nerves. Ancient Schwannomas are diagnosed based on the degenerative changes like calcification, as we had in this case. These are exceedingly rare tumors. Extracranial schwannomas are most frequently localised within the extremities or the head and neck region. Retroperitoneal occurence is very rare. Mostly these are asymptomatic or rarely can present with neurological symptoms like pain and numbness of legs. This patient was asymptomatic with this huge retroperitoneal ancient schwannoma. The minor trauma led to acute hemmorhage within the tumor leading to his symptoms hence the incidental finding. These are curable tumors with complete excision. Recurrence or persistence is associated with incomplete resection.

**WHEN PANCREATIC MASS IS NOT AN ADENOCARCINOMA!** S. Chebrolu[1], S. Sekhon[1], M. Veena[1]; [1]St. Francis Hospital, Evanston, IL *(Tracking ID #50708)*

LEARNING OBJECTIVES: Recognize the rare occurrence, clinical manifestations, diagnosis and the treatment of Primary Pancreatic Lymphoma (PPL).
CASE INFORMATION: A 77 year-old man presented with pruritus and jaundice of one week duration. It was associated with low-grade fever, tiredness and loss of appetite. His past medical history included neurofibromatosis and hypercholesterolemia and was on lovastatin and aspirin. On examination, he was noted to have icterus and neurofibromatosis. His abdomen was soft, non-tender with no palpable mass and he was fecal occult blood negative. Investigations revealed total bilirubin 14.9 mg/dl, direct bilirubin 12.7 mg/dl, alkaline phosphatase 585 U/l, AST 216 U/l and ALT 312 U/l. A CT scan of the abdomen showed a soft tissue mass of 6 cm diameter involving the head and uncinate process of the pancreas with extension into the periportal area and asssociated periaortic lymphadenopathy. ERCP was done and a long tight stenosis involving the common hepatic duct with dilatation of the intra-hepatic biliary ducts was noted and stenting was done. Brush cytology was benign. A CT guided pancreatic biopsy showed sheets of small uniform lymphoid cells and was reported as possible lympho-proliferative or neuroendocrine neoplasm. Exploratory laparotomy with portal lymph node biopsy and pancreatic fine needle aspiration was then done revealing infiltration of the pancreas with B-cell phenotype small cleaved cell follicular lymphoma. A diagnosis of PPL was made and he was started on chemotherapy.
DISCUSSION: Isolated PPL is a very rare tumor of the pancreas accounting for less than 2% of the cases and less than 50 have been reported in the literature. It represents an extra-nodal site of origin of non-Hodgkin's lymphoma that involves the substance of the pancreas. The clinical presentation is similar to that of the ductal tumors of the pancreas and there are no distinguishing radiologic features but evidence of a large pancreatic neoplasm associated with peri-pancreatic and retroperitoneal lymphadenopathy should make the clinician suspect it and include in the differential diagnosis of a pancreatic mass. Direct wedge biopsy of the pancreas or the enlarged peri-pancreatic and retro-peritoneal lymph nodes is the diagnostic procedure of choice though percutaneous CT-guided FNA can also be used. Chemotherapy is an essential part of the treatment of PPL with complete remission rates of 66% or higher and the prognosis of PPL is much better when compared to pancreatic adenocarcinoma.

**TOOTH OR CONSEQUENCES.** P.Y. Chen[1], E.F. Yee[1], G. Michelini[1]; [1]UCLA/San Fernando Valley Program, Sepulveda, CA *(Tracking ID #52633)*

LEARNING OBJECTIVES: 1. Recognize the clinical presentation of temporal arteritis. 2. Recognize the need for early diagnosis and treatment of temporal arteritis 3. Discuss management of temporal arteritis.
CASE INFORMATION: A 62 year old Caucasian male with a history of hypertension and tobacco use presented with right sided toothache and "flu-like" symptoms (sore throat, fatigue, malaise, and low grade fever). He was diagnosed with a viral URI and referred to a dentist. The patient returned seven days later with increasing tooth pain and continued symptoms. He was again referred to a dentist and sent home. Three days later, the patient was seen by a dentist who was unable to perform an exam due to the patient's severe pain with mouth opening. The patient returned to primary care for evaluation of new jaw pain, right sided headache, and continuing severe toothache. He denied visual changes. The physical exam was significant for jaw pain limiting mouth opening and a tender, prominent right temporal artery. Ophthalmic, cardiovascular, and neurological exams were normal. There was no evidence of synovitis or joint tenderness. Laboratory studies were significant for an elevated ESR (138 mm/hr). At this point, the differential diagnoses considered were: temporal arteritis, migraine headache, temporal mandibular joint pain, trigeminal neuralgia, sinus disease, or an atypical presentation of angina. A preliminary diagnosis of temporal arteritis was made on the basis of clinical presentation, physical exam, and markedly elevated ESR. The patient was treated empirically with prednisone 80 mg QD. His symptoms improved within the first 24 hrs of therapy. A biopsy of the temporal artery 2 days later demonstrated giant cells, macrophages, and disrupted elastica lamina confirming the diagnosis of temporal arteritis.
DISCUSSION: Temporal arteritis, also known as giant cell arteritis, may have various presentations. In our patient the primary presenting symptom was toothache, a seemingly benign condition. Usual presentations include headache, scalp tenderness, jaw claudication, diplopia, and polymyalgia rheumatica. Up to 10–15% of patients may present with arm claudication, cerebral ischemia, and/or peripheral neuropathy secondary to involvement of aortic arch branches. Visual loss due retinal artery ischemia is a devastating complication if temporal arteritis goes unrecognized and untreated. The diagnosis can be confirmed by temporal artery biopsy. Prednisone 1 mg/kg/day, is the most effective treatment. Extracranial vessel involvement can result in CAD, HTN, and subclavian, iliac, femoral, and renal artery stenosis. Serum ESR and clinical symptoms are good markers of disease activity. Our case demonstrates that temporal arteritis can present in many ways, therefore, primary care physicians need to have a high index of suspicion to diagnose this disorder. Early recognition and intervention are necessary in order to prevent permanent sequelae such as vision loss.

**RECTUS SHEATH HEMATOMA AS A CAUSE OF ABDOMINAL PAIN.** P. Cho[1], M. Jeon[2], A. Lin[1]; [1]UCLA/San Fernando Valley Program, Sepulveda, CA; [2]Kaiser, Panorama City, CA *(Tracking ID #52395)*

LEARNING OBJECTIVES: 1. Recognize rectus sheath hematoma as a cause of abdominal pain. 2. Recognize that rectus sheath hematoma can present acutely as well as sub-acutely.
CASE INFORMATION: A 64 y.o. male with two month history of paroxysmal atrial-fibrillation and long history of hypertension, hypercholesterolemia, and mild COPD presented to an outpatient clinic with one week history of right middle abdominal pain. Pain was sharp and localized in the middle area of right abdomen without any radiation. Coughing, getting up from a chair, and lifting or carrying a heavy object aggravated the pain, and resting relieved the pain. He also had chronic cough. He denied any dyspepsia, nausea, vomiting, diarrhea, constipation, fever, chills, recent travel history, or ill contacts. The patient had been therapeutic on coumadin. Physical exam was significant for mild tenderness over the right middle abdomen to palpation without any evidence of Murphy's sign, mass, or organomegaly. Skin exam showed no rash or lesions. His labs showed normal LFT's, CBC, and therapeutic INR. Initially, his pain was thought to be due to musculoskeletal disorder, and he was sent home on Tylenol. Two weeks later, the patient returned with worsening pain, which was similar in character as before but much intensified. Physical exam showed a 2 × 2 cm palpable subcutaneous mass in the right middle abdomen lateral to the umbilicus, which was somewhat hard, mobile, and exquisitely tender to palpation. The mass was not reducible and did not get larger with increasing intra-abdominal pressure. The skin was normal without any evidence of infection or trauma. Labs showed normal CBC and LFT. INR was elevated at 3.74. The ultrasound of the abdomen showed a hematoma in the right rectus sheath. Coumadin was discontinued, and the pain and the mass resolved.
DISCUSSION: Abdominal pain is a very common disorder seen in the outpatient clinic. Therefore, a thorough history is very important in working up a patient with abdominal pain. In this patient, the pain is suggestive of possible incarcerated ventral hernia even though rectus sheath hematoma must be considered in the differential diagnosis since he was on anticoagulation. According to the literature, the rectus sheath hematoma is a rare cause of acute abdominal pain, which presents acutely in patients soon after they have been started on anticoagulation with either low molecular weight heparin, coumadin, or both. However, this patient presented sub-acutely and some time after he was initially started on coumadin. Also, his initial INR was not supra-therapeutic. Therefore, it is important to recognize rectus sheath hematoma as a differential diagnosis when a patient is being anticoagulated. In addition, it is important to recognize that rectus sheath hematoma may present acutely as well as sub-acutely. Other causes of rectus sheath hematoma include direct trauma, spontaneously, as a result of twisting or abrupt changes in position.

**SCURVY: A MODERN CASE AND A HISTORICAL REVIEW OF THE DIAGNOSIS.** K.K. Christian[1]; [1]Hennepin County Medical Center, Minneapolis, MN *(Tracking ID #51675)*

LEARNING OBJECTIVES: 1) To recognize ascorbic acid deficiency as a cause of coagulopathy especially in nutritionally compromised patients. 2) To review historically how ascorbic acid deficiency was first diagnosed and later defined.
CASE INFORMATION: A 62 year old male was admitted from home with severe failure to thrive. His past medical history included squamous cell carcinoma of the head an neck, status post dissection and radiation ten years prior. He was an active alcoholic. He was noted to have significant oral bleeding which was initially attributed to extremely poor dental hygiene. On hospital day 12, his gingival bleeding and compromised swallowing caused aspiration and respiratory arrest, despite feedings through a PEG tube and strict NPO status. He required two days of ventilatory support. A complete work up ensued including caogulation and DIC parameters which were normal, platelet count which was normal, direct laryngoscopy which showed only marked dental carries and was non-diagnostic, bronchoscopy, also non-diagnostic, and a cervical MRI which successfully ruled out carotid-pharyngeal fistulas, showing only changes consistent with a prior radical neck dissection. An ascorbic acid level was sent on a whim and returned at 0.1 (nl 0.4–2.0). Ascorbic acid was added to his diet and promptly curtailed his gingival bleeding.
DISCUSSION: Scurvy is an uncommon but historically important diagnosis present in any person significantly deprived of vitamin C. Previously seen in times of discovery, famine, or warfare, in modern times the disease is present in patients with eating disorders, alcoholism, and those with gastrointestinal malabsorption.

**The Experiment of John Crandon MD, 1939**

| | Clinical Findings After Ascorbic Deprivation |
|---|---|
| day 41 | ascorbic acid absent from plasma |
| day 82 | ascorbic acid absent from WBCs |
| day 90 | Crandon incised a 6 cm lesion on his back |
| day 100 | biopsy of this lesion shows normal healing |
| day 134 | hyperkeratotic papules noted on buttocks and calves |
| day 155 | SBP dropped from 120 to 90 mmHg, never again to exceed 100 mm Hg |
| day 162 | perifollicular hemorrhages develop on lower legs |
| day 180 | Crandon collapses while performing exercise test, feels "near death" |
| day 181 | appendectomy scar from 15 years prior begins to disintegrate |
| day 182 | Crandon repeats incision |
| day 192 | biopsy shows unorganized clot |
| day 192 | Crandon infuses IV Vitamin C |
| day 202 | repeat biopsy shows normal healing |

**A CASE OF CHOLANGITIS AND PULMONARY EMBOLISM.** D.C. Christiansen[1], W. Sanchez[1], P.R. Daniels[1]; [1]Mayo Clinic, Department of Internal Medicine, Rochester, MN *(Tracking ID #51064)*

LEARNING OBJECTIVES: – Malignancy increases the risk of venous thromboembolic disease. When venous thromboembolic disease is discovered, cancer should always be considered, especially in patients with risk factors for malignancy. – Choledochal cysts have a high rate of malignant degeneration.
CASE INFORMATION: A 54 year-old female with congenital choledochal cysts presented with cholangitis and the acute onset of dyspnea. Her past medical history included several biliary surgeries for her congenital choledochal cysts (most recently a Roux-en-Y choledochojejunostomy) and multiple bouts of cholangitis.
Initially, the patient presented with several days of right upper quadrant abdominal pain and low-grade fevers. She was admitted to her local hospital and treated for cholangitis associated with Bacteroides bacteremia. A week after initial presentation, the patient developed the acute onset of dyspnea, cough and right-sided pleuritic chest pain. She was transferred to our institution for further evaluation.
On admission, the patient was febrile, tachycardic, hypotensive, mildy hypoxic and in moderate respiratory distress. Physical exam revealed a large right pleural effusion and mild tenderness in the right upper quadrant of the abdomen.
Intravenous heparin and broad-spectrum antibiotics were started. CT scan revealed multiple bulky pulmonary emboli as well as deep venous thrombosis from the pelvic veins extending into the infrarenal IVC. The liver appeared cirrhotic with multiple low-attenuation lesions. Once her respiratory status stabilized, CT-guided biopsy of the liver lesions was performed. Cytology revealed grade 3 (of 4) cholangiocarcinoma. Due to the unresectable nature of her disease, the patient elected to pursue hospice care.
DISCUSSION: Choledochal cysts are congenital cystic dilations of the intra- and extrahepatic biliary system. The incidence is 1 in 13 – 15,000 in western countries but as high as 0.1% in Japan. Complications include cholangitis, pancreatitis and degeneration into carcinoma. Management is cyst excision and treatment of complications. The risk of carcinoma is thought to be related to chronic biliary stasis. Incidence of cancer is related to duration of the disease and is as high as 14.3% per decade after 20 years.
Venous thromboembolism is a known complication of malignancy, including cholangiocarcinoma, and a frequent cause of morbidity and mortality in patients with cancer. Venous thrombosis in cancer may result from direct compressive effects of tumors or from elaboration of procoagulant factors by malignant cells. Our patient's extensive clot burden and predisposing condition for malignancy led us to aggresively investigate the possibility of malignancy.

**TRICUSPID VALVE PNEUMOCOCCAL ENDOCARDITIS: A CASE REPORT AND REVIEW OF THE LITERATURE.** S.L. Cohn[1], Z.Z. Khiangte[1]; [1]SUNY Downstate Medical Center, Brooklyn, NY *(Tracking ID #51328)*

LEARNING OBJECTIVES: 1. Recognize the occurrence of tricuspid valve pneumococcal endocarditis in a patient with no obvious risk factors. 2. Outline the clinical presentation of pneumococcal endocarditis. 3. Recognize the increasing emergence of penicillin resistant Streptococcus pneumoniae.
CASE INFORMATION: A 76 year old woman with a history of seizure disorder and hypertension and no cardiopulmonary history or substance abuse presented with a one week history of back pain unresponsive to ibuprofen, weakness, difficulty walking, and questionable syncope. She was afebrile with normal vital signs, had a 2/6 systolic murmur along the left sternal border, unchanged with inspiration, and had moderate epigastric, right upper quadrant, and lumbar spine tenderness. Laboratory tests showed leukocytosis, mild anemia, and BUN 27. Urinalysis, CXR, and EKG were normal. During the hospital course, she became febrile. Despite empiric antibiotics (cefoxitin & gentamicin), the patient continued to have temperature spikes. Cholecystitis and diverticulitis were ruled out by sonogram, HIDA scan, and abdominal CT. Spine films and bone scan revealed only non-specific findings. Blood cultures subsequently grew S. pneumoniae (resistant to oxacillin ± penicillin), and endocarditis was considered. A transthoracic echocardiogram was suspicious for a tricuspid valve vegetation which was confirmed by transesophageal echocardiogram. Antibiotics were changed to ampicillin and clindamycin which resulted in symptomatic improvement and resolution of the tricuspid vegetation echocardiographically.
DISCUSSION: In the penicillin era, pneumococcal endocarditis is an unusual but serious infec-tion. Most reported cases involved other valves (usually left-sided), concomitant pneumonia or meningitis, or immunocompromised patients. Although right-sided valve infections are less life threatening, the diagnosis may be more difficult due to the indolent nature of presentation. Isolated tricuspid involvement with pneumococcus is rare. A high degree of clinical suspicion is required in patients who present with fever and non-specific symptoms, no known co-morbid conditions, and with no obvious source of infection. Echocardiography can confirm the diagnosis.

**PHYSICIAN SELF-KNOWLEDGE, MINDFULNESS, AND THE DIAGNOSIS OF SUFFERING.** J.E. Connelly[1]; [1]University of Virginia, Charlottevile, VA *(Tracking ID #51070)*

LEARNING OBJECTIVES: 1) To incorporate self-knowledge into clinical decision-making, 2) To recognize mindfulness as a clinical tool, 3) To diagnose patient suffering.
CASE INFORMATION: The patient, an 84 year old man who is now dying, was admitted to the hospital 2 weeks ago due to massive gastrointestinal bleeding. He had recurrent bleeding and DIC, an MI, CHF and three episodes of pulmonary edema. He received fifteen units of blood. Arrangements to transfer him to the nursing home were made, but on three occasions bleeding recurred and the plans canceled. After another episode of bleeding he says that he is too weak and prefers to stay at the hospital to die; however, his wife wants him transferred anyway so it will be easier for her to visit him. As his primary care physician, I am on my way to see them. I assume his wife will be present; he usually defers to her for guidance, and today we need to make a "final" plan. He needs a voice in this decision, but I hear, in my thoughts, my own voice taking charge as if directing them, telling them what is the best option. The hospital is full; others are waiting for admission. I become uncomfortable with my pre-determined plan to transfer him today. Before I enter his room, I decide to be open to all options that may arise in our conversation, and I promise myself to listen to both of them and to assess their perceptions and preferences. As I enter his wife asks me, "Will you kiss him on the forehead?" She then tells a story about the 17 years of our relationship — a story that connects us and enables us to appreciate each other fully as individuals. As I sit beside him, I see that he is weak and tired. I say, "I can see you are suffering." He nods and I encourage him to explain further. He says, "I'm not a person anymore. I can't walk outside; I can't play the piano. I'm just not a person. My time is up." He mentions his children who will arrive the next day and confirms the importance of seeing them. I realize that he may die during transfer to the nursing facility; I explain my assessment and concern. At once, we all realize that he needs to remain hospitalized until after his visit with the children since transfer risks his death.
DISCUSSION: Mindfulness is a non-judgemental way for physicians to attend to their physical or mental processes during ordinary clinical tasks. It encourages self-monitoring to bring to consciousness personal thoughts, preferences, values, emotional reactions, and decisionmaking processes. Often physicians have habitual reactions to clinical situations, such as feelings of helplessness, desires to control, intense needs to "do something," or wishes to make everything positive. These reactions need to be recognized in the moment. Without this self-knowledge physicians may only see from a narrow personal perspective, miss opportunities to diagnose problems, and confuse therapeutic interventions. Opportunities to deepen medical care and make it more meaningful to all involved, as in the care of those who are suffering, may be missed without an approach that includes self-knowledge and mindfulness, both necessary aspects of relationship-based care.

**A STRANGE CASE OF ABDOMINAL PAIN.** A. Cooper[1]; [1]Department of Medicine, University of Pennsylvania, Philadelphia, PA *(Tracking ID #50505)*

LEARNING OBJECTIVES: 1. Review the symptoms of carcinoid syndrome and the diagnostic value of 5-HIAA. 2. Describe the rational for an octreotide scan.
CASE INFORMATION: A previously healthy 58 year old man complained of sudden onset of abdominal pain that began 1 week earlier. The pain was described as a burning sensation beginning in his back at the level of T11, radiating around his flanks bilaterally to his umbilicus. The pain would intermittently increase to almost unbearable levels, particularly when lying flat. Review of systems was negative other than a 40 pound weight loss over the last 4 months. The patient had no past medical or surgical history. He had a 20 pack-year smoking history and denied use of drugs or alcohol. Examination was significant for temporal wasting. Abdominal exam revealed decreased bowel sounds and tenderness to palpation in the suprapubic and periumbilical regions with voluntary guarding. Labs showed normal electrolytes, glucose, renal function, white blood cell count, platelets, liver associated enzymes, amylase, lipase, CA 19 – 9, C-reactive protein, urinalysis. The patient was mildly anemic with hemoglobin of 11.7 g/dl. A CT scan of the abdomen revealed a mass involving the body and tail of the pancreas and multiple liver lesions consistent with metastases. Pathology of a liver biopsy indicated tissue consistent with a neuroendocrine tumor. An octreotide scan was performed which showed no evidence to suggest a somatostatin rich tumor. However, a urinary 5-HIAA (hydroxyindolacetic acid) level was elevated at 19 mg/day (normal 0 – 15 mg/day), and a serum chromogranin A was elevated at 4724 ng/ml (normal 0 – 76 ng/ml).
DISCUSSION: Neuroendocrine tumors may secrete serotonin, which is then converted in the blood to 5-HIAA and can be measured in a 24-hour urine collection. Greater than 100 mg/day of urinary 5-HIAA may result in a serotonin syndrome consisting of diarrhea, wheezing, and paroxysmal hypotension. Other secreted monoamines and peptides, which vary from patient to patient, are thought to cause flushing. Elevated chromogranin levels have unclear specificity for neuroendocrine tumors and are therefore not routinely used for diagnosis. Local mass effect and hormone release likely caused this patient's pain, despite the lack of features of carcinoid syndrome. Most neuroendocrine tumors have large numbers of somatostatin receptors which enable localization by an octreotide scan. This scan utilizes a radiolabeled somatostatin analog, octreotide, to bind to somatostatin receptors. Areas of increased uptake help localize the primary tumor, sites of metastases, and confirm complete post-operative tumor removal. Depending on the type of tumor, the sensitivity of an octreotide scan for detecting a neuroendocrine tumor ranges from 58% – 92%. In comparison, the sensitivity of CT is 30% – 40% for a tumor less than 2 cm. Notably, the sensitivity of an octreotide scan is only 25% – 60% for detecting insulinomas, and is therefore not a primary diagnostic test when insulinoma is suspected. Thus, because of its' relatively high sensitivity, consider using an octreotide scan as an initial diagnostic tool when a noninsulinoma neuroendocrine tumor is suspected.

**KLIPPEL-TRENAUNAY SYNDROME PRESENTING AS PULMONARY EMBOLISM.** S. Copps[1], J. Tedesco[1], A.K. Ghosh[1]; [1]Mayo Clinic, Rochester, MN *(Tracking ID #46192)*

LEARNING OBJECTIVES: 1) To recognize the cardinal signs of Klippel-Trenaunay Syndrome (KTS), 2) To be aware of the potential for pulmonary emboli in patients with KTS.
CASE INFORMATION: A 39-years-old female presented to the Emergency Department (ED) following an episode of shortness of breath, lightheadedness and syncopal episode. On admission, the patient complained of mild persistent light-headedness and shortness of breath, and mild pain over her left medial thigh. Past medical history was unremarkable. On examination, she was afebrile with a heart rate of 110/mt, respiratory rate of 16/mt, BP of 126/76 mm Hg, and oxygen saturation of 98% on room air. She had facial asymmetry with the left side being more prominent, and a diffuse, faint, port wine stains over the upper lip and forehead. Her extremities revealed discrepancies between the diameter and length of the right and left forearms, overgrown bilateral lower extremities, and two areas of superficial thrombophlebitis over the medial left thigh. She had multiple diffuse areas of port wine staining over the chest, back, and lower extremities. The remainder of the physical exam was within normal limits. Investigation revealed, V/Q scan suggestive of multiple bilateral pulmonary emboli of varying ages and sizes which was confirmed by a spiral CT of the chest. A CT abdomen/pelvis done as part of the hypercoagulability workup showed a large thrombus in the left greater saphenous vein with extension into the left common femoral vein. MRI of the brain showed two lesions

consistent with cavernous hemangiomata. Echocardiogram revealed mild right ventricular hypertrophy and elevated pulmonary artery pressure at 50 mm Hg. Rest of the work up of hypercoagulability workup-were normal. An IVC filter was placed and anticoagulation was started. Based on the constellation of findings, the diagnosis of KTS was made. Upon discharge she was asked to continue anticoagulation under close physician supervision indefinitely.
DISCUSSION: KTS is a rare congenital malformation characterized by the triad of capillary malformations (port wine stains), varicosities and/or venous malformations, and predominantly unilateral bony or soft tissue hypertrophy. Our patient exhibited some component of all three of the cardinal signs of KTS. Pulmonary embolism (PE) is a well documented complication of KTS occurring between 14 and 22% of cases, though this may not be accurate given that there is a paucity of data on KTS in the medical literature. The increased incidence of PE is most likely due to venous abnormalities and venous incompetence leading to stasis and thrombosis. There is no evidence to date in support of prophylactic anticoagulation once the diagnosis of KTS is made, however it is important to be always cognizant of the fact that patients with KTS are at relatively high risk of developing potentially life threatening thrombotic events. Accordingly, one should have a low threshold for starting anticoagulation.

**PREGNANCY RELATED RENAL INSUFFICIENCY.** C.R. Crowder[1], L. Orlando[1]; [1]Tulane University, New Orleans, LA *(Tracking ID #51280)*

LEARNING OBJECTIVES: 1) To understand the management of acute renal insufficiency in pregnancy. 2) To recognize Hemolytic Uremic Syndrome as a cause of acute renal insufficiency in pregnancy. 3) To understand the importance of early recognition and intervention in pregnacy-related acute renal insufficiency.
CASE INFORMATION: A 36 year-old nulliparous female presented to the emergency room with pleuritic chest pain and dyspnea one month after a salpingectomy for an ectopic pregnancy. Two months earlier her creatinine, normal at baseline, had increased to 1.6 mg/dL. She had a blood pressure of 170/106 mmHg. The pulmonary, integument, and neurologic exams were normal. Her hemoglobin was 9 g/dL, platelets 225 k/cm3, and creatinine 3.9 mg/dL. There were schistocytes on the peripheral smear, an indirect bilirubinemia, and severe proteinuria. Progressive anemia (hemoglobin 7 g/dL) and acute renal failure (creatinine 6 mg/dL) provoked a renal biopsy which revealed thrombotic microangiopathy (TMA). The combination of TMA, renal failure, and hemolytic anemia suggested the diagnosis of hemolytic uremic syndrome (HUS). Initiation of plasmapheresis dramatically improved both her anemia and renal function.
DISCUSSION: TMA is a manifestation of malignant hypertension, pre-eclampsia, thrombotic thrombocytopenic purpura (TTP), or HUS, all of which can be pregnancy-related. A diagnostic clue is the timing of disease onset to conception. While both TTP and pre-eclampsia commonly occur in the third trimester, HUS presents in the first. Although our patient's conception date was unknown, the onset of renal insufficiency likely corresponded with the first weeks of pregnancy. Typically, HUS is aggressive leading to rapid renal failure; therefore our patient's prolonged course is unusual. Moreover, the lack of thrombocytopenia, a common feature of HUS, further prolonged the diagnosis. The rapid response to plasmapheresis; however, and the temporal relation of her pregnancy to the onset of progressive hemolytic anemia and renal insufficiency is highly suggestive of HUS. While all causes of TMA should be considered, it is important to recognize that prompt treatment of TTP and HUS with plasmapheresis is necessary to prolong survival. Therefore, it is not necessary to wait for all components of the disease to manifest prior to initiating therapy.

**ALL THAT IS NODULAR IS NOT CANCER: GRANULOMATOUS PROSTATITIS AS AN UNUSUAL PRESENTATION OF HIV.** M. Cunnane[1], R. Granieri[1]; [1]University of Pittsburgh, Pittsburgh, PA *(Tracking ID #50762)*

LEARNING OBJECTIVES: 1. To recognize the differential diagnosis of the palpable prostate nodule. 2. To recognize the various etiologies of granulomatous prostatitis. 3. To diagnose and treat granulomatous prostatitis.
CASE INFORMATION: N.P. is a 53 year old male with benign prostatic hypertrophy who presented for routine medical care. He had a remote history of prostatitis and a recent left inguinal hernia repair. On review of systems, the patient denied urinary frequency, hesitancy, or dysuria, although he did endorse nocturia. The patient was married and had no family history of prostate cancer. Digital rectal exam was notable for a slightly enlarged prostate with a palpable soft nodule at the left apex. Urinalysis was unremarkable; serum PSA was 1.9. A transrectal ultrasound was performed and showed no hypoechoic lesions. The patient was referred for prostatic biopsy, which revealed granulomatous prostatitis secondary to histoplasma. Subsequent HIV testing was positive, and the patient was found to have a CD4 count of 58. Blood cultures were obtained and therapy with itraconazole was initiated.
DISCUSSION: Although expert panel screening recommendations for prostate cancer remain controversial, the digital rectal exam, in conjuction with serum PSA measurement, is a widely used tool for prostate cancer screening. Although >50% of palpable prostatic nodules are malignant at biopsy, other causes of prostate nodularity include prostatic calculi, nodular BPH, infarction, and granulomatous prostatitis. Granulomatous prostatitis is uncommon (0.8 – 1.0% of all biopsies), but can develop after urinary tract infections or transurethral prostatectomy. Other etiologies inculed systemic granulomatous diseases, tuberculosis, intravesical administration of BCG, and disseminated fungal infections, such as blastomycosis, histoplasmosis, or coccidiomycosis. Most patients with granulomatous prostatitis will present with obstructive or irritative symptoms. Physical exam will reveal an indurated, firm nodule which is clinically indistinguishable from malignancy. Pyuria and hematuria will often be present on laboratory evaluation. Transrectal ultrasonography is not diagnostic, since hypoechoic lesions, suggestive of cancer, may be visualized. Although clinical history may be helpful, biopsy is essential in determining the diagnosis. Therapy is directed at the underlying eitology. Symptoms will typically resovle with treatment, but the digital rectal exam will continue to remain abnormal for months to years. Patients with granulomatous prostatitis are not at increased risk for prostate cancer. However, a new prostatic nodule, or a change in the consistency of the initial nodule, should raise concerns about malignancy.

**A PATIENT WITH MACROCYTOSIS AND FREQUENT FALLS: DIAGNOSING PERNICIOUS ANEMIA.** M. Cunnane[1], R. Granieri[1]; [1]University of Pittsburgh, Pittsburgh, PA *(Tracking ID #50784)*

LEARNING OBJECTIVES: 1. To recognize the clinical presentation of B12 deficiency. 2. To diagnose and manage pernicious anemia.
CASE INFORMATION: M.S. is a 78 year old male with multiple medical problems who presented with a recent history of weakness, fatigue, and frequent falls. The patient reported losing his balance on a regular basis and attributed this to "slow" and "sluggish" reflexes. On review of systems, the patient denied any history of melena or hematochezia. His social history was remarkable for regular and excessive alcohol use. Physical exam was notable for pale conjunctiva; there was no evidence of organomegaly, and proprioception and peripheral sensation were intact. Laboratory studies revealed a hemoglobin and hematocrit of 7.5 and 22.2; mean cell volume was 129.2. Serum B12 level was 35 pg/mL and anti-intrinsic factor antibody was positive. The patient was diagnosed with B12 deficiency secondary to pernicious anemia and was treated with parenteral vitamin B12.
DISCUSSION: Anemia is a common problem in the elederly and its prevalence increases with age. Pernicious anemia (PA), which is characterized by inadequate secretion of gastric intrinsic factor and impaired absorption of vitamin B12, may be identified in 2.7% of women and 1.4% of men over the age of 60. The clinical presentation of PA reflects the abnormal vitamin B12 levels. Patients with PA may present with parasthesias, ataxia, and dementia. Peripheral blood smear demonstrates macrocytosis and hypersegmented neutrophils. A serum B12 level less that 200pg/mL is consistent with B12 deficiency; in patients with borderline serum B12 levels, an elevated methylmalonic acid or homocysteine level would identify B12 deficiency. The diagnosis of PA is confirmed in a patient with a low serum B12 level and anti-intrinsic factor antibodies, which are highly specific, but relatively insensitive, for PA. The Schilling test, in which radiolabeled vitamin B12 is injected and urinary excretion is measured, may also be used. Low urinary excretion of radiolabeled B12 indicates malabsorption; subsequent administration of oral intrinsic factor will normalize urinary excretion in patients with PA. PA is typically treated with intramuscular injections of B12, although high dose oral B12 may also be effective. A reticulocytosis will indicate a response to therapy within 3 – 4 days; neurologic symptoms will improve slowly over the course of several months. Since PA is relatively common in the elderly, the diagnosis should be considered in patients presenting with unexplained falls.

**WHEN DO GENITO-URINARY PROCEDURES REQUIRE BACTERIAL ENDOCARDITIS PROPHYLAXIS?** W. Dale[1], R. Granieri[1]; [1]University of Pittsburgh, Pittsburgh, PA *(Tracking ID #47814)*

LEARNING OBJECTIVES: 1) Recognize endocarditis prophylaxis indications for planned invasive genito-urinary procedures; 2) Prophylax appropriately for planned genito-urinary procedures.
CASE INFORMATION: A 58 y.o. male with a prosthetic aortic valve, coronary artery disease, and benign prostatic hypertrophy with recurrent urinary tract infections (UTI) presented with shortness of breath, fevers, and chills for 1 day. The patient underwent a urological procedure of an unknown type at an outside facility several weeks prior to evaluate recurrent UTIs. He denied intravenous drug use or recent dental procedures. Temperature was 38.1C. Physical exam was notable for 15cm JVD, bibasilar rales, loud second heart sound and a holosystolic murmur at the left upper sternal border radiating to the carotids. Labs revealed WBC 12.5 with 91 neutrophils. EKG revealed third-degree heart block at a ventricular rate of 60. Trans-esophageal echocardiogram demonstrated a ring-enhancing lesion near the aortic valve with preserved left ventricular function. Blood cultures were positive for ampicillin-sensitive salmonella. The patient was diagnosed with endocarditis and peri-valvular abscess. Following administration of intravenous antibiotics, valve replacement surgery with drainage of peri-valvular abscess was performed. Unfortunately, the patient died shortly after surgery.
DISCUSSION: Knowing when to use bacterial prophylaxis in the world of multiple invasive procedures, rising antibiotic resistance, and shifting expert recommendations is challenge for the generalist. As in this case, failure to do so can be devastating. Bacterial endocarditis has an incidence of 4,000 to 8,000 cases per year. About two-thirds of all endocarditis occurs in patients with known risk factors. Only 39% of dentists and 27% of physicians adhere to guidelines. The risk for endocarditis is dependent on two factors: the underlying cardiac condition and the procedure performed. Prosthetic cardiac valves greatly increase the risk. Urologic procedures that do require prophylaxis include cystoscopy, urethral dilation, and urethral catheterization if a UTI is present. In a recent study, bacteremia occurred after transurethral resection of the prostate in 31% of the patients, 24% following urethral dilatation, 17% following cystoscopy, and 8% following urethral catheterization. Procedures that do not warrant prophylaxis include vaginal hysterectomy, vaginal delivery, and Cesarean section. If there is no active infection, the following procedures also do not warrent warrant prophylaxis: urethral catheterization, uterine dilatation and curettage, therapeutic abortion, sterilization procedures, or insertion/removal of intrauterine devices. The prophylactic regimen chosen is dependent on the most likely causative agent; for urological procedures, this includes Enterococcus and Klebsiella. Antibiotic choice in the presence of a UTI is guided by culture results. Generic prophylaxis for moderate risk patients is ampicillin; for high risk patients, gentamicin is added.

**TACHYCARDIA AND WEIGHT LOSS IN A MARATHON RUNNER PREPARING FOR HER WEDDING: LIFE STRESSORS AS A RISK FACTOR IN THE DEVELOPMENT OF GRAVES' DISEASE.** W. Dale[1], R. Granieri[1]; [1]University of Pittsburgh, Pittsburgh, PA *(Tracking ID #47885)*

LEARNING OBJECTIVES: 1) Recognize early signs and symptoms of hyperthyroidism in a young woman; 2) Recognize the possible role of stressful life events in the development of Graves' disease.
CASE INFORMATION: A 28 y.o. female presented with jitteriness", fatigue and nausea for 1 week and a 10 pound weight loss over 3 months. The patient is a marathon runner but had been unable to do more than work at her job and rest afterwards due to fatigue. She reported

feeling anxious, but attributed this to planning her approaching wedding. Her last menstrual period was 1 week prior. She denied fever, bowel habit changes, hair or nail changes, or heat intolerance. Medications included an oral contraceptive. She denied alcohol, tobacco, or intravenous drug use. She had a remote family history of thyroid disease of unknown type. Vitals included: temperature of 37C; blood pressure and heart rate -122/82, 84 (supine); 110/72, 100 (standing); weight 116 pounds. Physical exam was significant for resting tremor; smooth, symmetric, mildly enlarged thyroid; mild hyperreflexia; and a pulsitile, non-enlarged aorta. Labs were significant for TSH <0.01, FTI 4.0, positive thyroglobulin antibody, H/H 13.7/39.8 and negative beta-HCG. Radioiodine scanning revealed 58.1% uptake, diffusely enlarged thyroid, and no nodules. The patient was diagnosed with Graves's disease. She was treated symptomatically with atenolol and definitively with radioablation.
DISCUSSION: While it may be tempting to discount a stressed, anxious young woman presenting with nonspecific complaints, it is important to consider the possibility of hyperthyroidism. Causes of hyperthyroidism with elevated radioiodine uptake include autonomous thyroid tissue, TSH or HCG-mediated hyperthroidism, and autoimmune thyroid disease. Graves' disease, the most common type of hyperthyroidism in young patients, is caused by autoantibodies to the thyrotropin receptor that activate it and stimulate thyroid hormone synthesis and hypersecretion. Risk factors include a family history of Graves' and high dietary iodine. Stressful life events may be an additional risk factor. A case-control study demonstrated certain stressors were associated with a statistically significant increased risk for Graves'. Stressors included: change in time spent on work (Relative Risk [RR] = 7.00), unemployment for at least 1 month (RR = 8.00), arguments with one's superior at work (RR = 3.50), change in work conditions (RR = 4.00), increased arguments with spouse (RR = 11.00), increased arguments with fiancé or a steady date (RR = 8.00), hospitalization of a family member for serious illness (RR = 3.25) and moderate financial difficulties (RR = 3.25). This compares with the risk (RR = 7.20) of having a first degree relative with Graves' in the same study population.

**MUDPILES.** N.B. Dave[1], R. Granieri[1]; [1]University of Pittsburgh, Pittsburgh, PA *(Tracking ID #48926)*

LEARNING OBJECTIVES: 1. Recognize symptoms and signs of salicylate toxicity especially in the geriatric population. 2. Recognize the pathophysiology of salicylate overdose. 3. Recognize the management of salicylate overdose.
CASE INFORMATION: Mr. U. is a 69 yr old male with history of osteoarthritis who presented with mental status changes. He was accompanied by his wife who stated that three weeks prior to presentation, she noted unusual behavior. His mentation was intact until several days prior to admission and his speech became unclear and non-contextual. She noted he was unable to operate the light switch. She denied any alcohol use since 1993, any illicit or over the counter drugs, or any prescription drugs. On his physical exam, his blood pressure was 126/84 mm Hg, Pulse 84/min, Respirations 35 – 45/min, and Temperature of 98.4 degrees Fahrenheit. The patient was delirious, agitated, and breathing very deeply. His pupil exam was normal and ocular movements were intact. He had no nystagmus. On neurological examination, he was delirious, oriented only to self and partially directable. Motor strength was 5/5 and reflexes were intact. Sodium 148 mmol/L. Potassium 4.0 mmol/L. Chloride 115 mmol/L. Bicarbonate of 16 mmol/L. BUN of 14 mg/dL. Creatinine of 1.4mg/dL. Anion Gap of 21. Liver function tests were normal. WBC 8.0. Hemoglobin 14 g/dL. Hematocrit 42%. Platelets 201,000. Arterial blood gas on 2 liters oxygen: 7.46/18(PCO2)/73(PO2)/12. Non-contrast CT of the head was unremarkable. Given these lab findings, focused and directed questioning of the wife regarding aspirin use was done. She reported that her husband was taking at least 6 aspirin pills daily for knee pain over the last month. A salicylate level was 129 with high normal as 30.
DISCUSSION: The diagnosis of salicylate toxicity can be elusive in the elderly because of chronic ingestion of aspirin for treatment and prevention of common medical conditions. Symptoms of salicylate toxicity may be attributable to chronic medical problems in the elderly. Salicylates must move into tissues in order to cause toxicity, and it is the concentration in the brain that correlates with mortality. Salicylates directly stimulate the CNS respiratory centers and skeletal muscle metabolism which causes a respiratory alkalosis. The underlying acid-base disturbance is a metabolic acidosis. Clinical manifestations of toxicity begin 3%6 hours after acute ingestion and include vomiting, sweating, tachycardia, tachypnea, fever, tinnitus, and confusion. Chronic intoxication, as seen in this patient, leads to hyperventilation, tremor, papilledema, agitation, paranoia, bizarre behavior, and confusion. Treatment and management should be started immediately. A repeat level should be checked 6 hours after the initial level is drawn. Patients should be rehydrated with fluids containing glucose. Alkalinization of the urine (pH>8.0) enhances renal excretion of salicylates. With older patients, chronic ingestions, altered MS, and with those who deteriorate despite adequate supportive care, hemodialysis may have significant benefit.

**AN INJURY GONE HAYWIRE: REFLEX SYMPATHETIC DYSTROPHY.** A. Dechet[1]; [1]University of California, San Francisco, San Francisco, CA *(Tracking ID #51478)*

LEARNING OBJECTIVES: 1. Recognize the early signs and symptoms of reflex sympathetic dystrophy (RSD). 2. Initiate interventions to prevent complications of RSD. 3. Manage treatment options for RSD.
CASE INFORMATION: IS, a 63 year-old, right-handed female, complains of right hand pain after a mechanical fall. Xray shows a fractured 5th metacarpal and her hand is splinted. One month later, the patient describes diffuse swelling and a burning and throbbing pain. A repeat Xray shows no new fractures and the patient is referred to occupational therapy. Two months after the initial injury, the patient is hospitalized for a gastrointestinal bleed secondary to an ulcer and her ibuprofen use; her pain meds are changed. Three months after the injury, the patient's pain and edema extend to her lower arm, and her wrist is splinted for possible carpal tunnel syndrome. One month later, the patient continues to have worsening of her lower arm pain and edema. Her past medical history is noteworthy for diabetes mellitus, hypertension, hypothyroidism, peptic ulcer disease, chronic anemia, hyperlipidemia, and obesity. Her medications include metformin, rosiglitazone, glipizide, benazepril, hydrochlorothiazide, atorvastatin, levothyroxine, rabeprazole, aspirin, vicoden, and acetaminophen. On examination her right hand and forearm are diffusely tender and swollen to the point of limiting her range of motion. The skin overlying her hand is shiny and warm to the touch. There is no excessive sweat production. Concern is raised for reflex sympathetic dystrophy, so the patient is given nortriptyline and referred for aggressive occupational and physical therapy.
DISCUSSION: Reflex sympathetic dystrophy is a disorder of the extremities, characterized by pain, swelling, vasomotor instability, skin changes, and bone demineralization that can occur after an injury or spontaneously. Its name has recently been changed to Complex Regional Pain Syndrome, but most clinicians still refer to the disorder by RSD. Its pathophysiology is unclear but is believed due to an increased catecholamine hypersensitivity of injured peripheral nerves and to formation of a reflex sympathetic arc. While there are no well-established criteria for RSD, the clinician should be alerted to this diagnosis when the severity of the symptoms is disproportionate to the degree of initial trauma and when the symptoms persist beyond the usual expected course. Patients often complain of pain that is burning or throbbing in nature, temperature sensitivity, and swelling. Early suspicion is paramount, as diagnostic tests are not often helpful, and prompt therapy is necessary to avoid complications. Physical and occupational therapy are the mainstays of prevention and treatment, and tricyclic antidepressants are often helpful for pain relief. Multiple treatment modalities exist, such as calcitonin, topical creams, and ganglion blocks, and should be tried progressively and in a timely fashion if the current therapy is not effective.

**FULMINANT HEPATIC FAILURE INDUCED BY SICKLE CELL VASO-OCCLUSIVE CRISIS. O. DEGANI, MD, J. GARCIA, MD, J. ORTEGA, MD. INTERNAL MEDICINE DEPARTMENT, WAYNE STATE UNIVERSITY, DETROIT, MI.** O. Degani[1], J. Garcia[1], J. Ortega; [1]Wayne State University, Detroit, MI *(Tracking ID #50280)*

LEARNING OBJECTIVES: Acute life threatening organ failure is a severe and catastrophic complication of sickle cell disease (SCD). Acute hepatic failure is an uncommon but well-documented complication of SCD. We report a case of fulminant hepatic failure with hyperbilirubinemia in a patient with sickle cell vaso-occlusive crisis.
CASE INFORMATION: 36-year-old female with sickle cell anemia (HbSS) with history of multiple hospital admissions for painful sickle crisis found to have rapid onset of jaundice, lethargy, disorientation and right upper quadrant tenderness. Past medical history included end-stage renal disease on hemodialysis and hypertension. Laboratory results were consistent with cholestasis and fulminant hepatic failure with profound prolonged clotting times. The patient was transferred to intensive care (ICU) and treated supportively for hepatic encephalopathy with lactulose, fresh frozen plasma, vitamin K and broad-spectrum antibiotics, and transfused with packed red blood cells to raise her hemoglobin. Cholelithiasis was ruled out by ultrasonography and there was no evidence of infection. Hemoglobin (Hb) electrophoresis revealed Hb S 56.3%, Hb A 40.7%, Hb A2 2.8% and Hb F <0.2%. She subsequently underwent six-unit red blood cell exchange transfusion. Thereafter, her symptoms, mental status and liver function improved considerably with repeat Hb electrophoresis revealing Hb A 56.8% and Hb S 39.2%.
DISCUSSION: Sickle cell intrahepatic cholestasis is a rare but severe, life-threatening complication of SCD and must be considered in the differential diagnosis of liver failure in these patients. Prompt diagnosis and treatment with red cell exchange transfusion is essential to reverse ischemic hepatic injury.

**WHEN IS A SORE THROAT MORE THAN A SORE THROAT?** P. Dennen[1], A.R. Robinson[1]; [1]University of Colorado Health Sciences Center, Denver, CO *(Tracking ID #51954)*

LEARNING OBJECTIVES: To understand the clinical presentation and diagnosis of Lemierre's syndrome.
CASE INFORMATION: A 25-year-old previously healthy male was admitted to the intensive care unit for acute respiratory distress. Symptoms began with a sore throat one week prior to admission. Over that week, he had visited his physician three times for persistent throat pain and worsening dysphagia, which failed to improve with moxifloxacin. He developed shortness of breath and pleuritic chest pain without cough two days prior to admission along with continued sore throat, dysphagia, and high fevers. His social history was significant only for occasional chewing tobacco; he denied recent travel or exposure to farm animals. Initial vital signs upon admission were: temperature 102.9, heart rate 140/min, BP 143/106, RR 54, oxygen saturation 84% on 100% oxygen via a non-rebreather face mask. Physical exam was remarkable for enlarged, erythematous tonsils bilaterally without exudate and tender left submandibular and anterior cervical lymphadenopathy. Respirations were rapid and shallow with a right pleural rub and decreased breath sounds at the right base. Significant laboratory findings included a WBC 11,000 (98% neutrophils), platelets 9,000, BUN 53, creatinine 1.9, total bilirubin 3.5 (direct 2.8), INR 1.5, fibrinogen 893, fibrin spilt products <10, and a positive D-dimer. Chest X-ray revealed diffuse fluffy infiltrates with a right pleural effusion, which appeared loculated on bedside ultrasound. Pleural fluid was remarkable for a pH of 6.3, glucose <10, LDH 8871, WBC 4890 (92% neutrophils) and a negative Gram stain. A CT scan of the neck with contrast confirmed the presence of thrombosis extending from the tonsillar vein into the internal jugular vein. Blood cultures drawn prior to admission subsequently grew Fusibacterium necrophorum.
DISCUSSION: Lemierre's syndrome, also known as necrobacillosis or post-anginal sepsis, was described by Lemierre in 1936. As in this case, it is often a clinical diagnosis. It typically presents with an initial pharyngotonsillitis or peritonsillar abscess in a young, previously healthy person, followed by pain or neck swelling due to septic thrombophlebitis of the ipsilateral internal jugular vein. This is complicated by metastatic embolic abscesses in the lung in 85% of cases. Delay in diagnosis can result in significant morbidity, with complications including diffuse pulmonary abscesses, empyema, and respiratory failure secondary to ARDS. Mortality is reported to be as high as 20%. The primary pathogen, Fusobacterium necrophorum, is a normal oropharyngeal organism. Lemierre's syndrome was rarely reported during the 1960's and 1970's likely due to the widespread use of penicillin in the treatment of acute tonsillitis. A more recent increase in incidence may be attributable to changes in the use of antibiotics or to increasing resistance to penicillin. This syndrome should be considered in any patient with severe, persistent sore throat, fever, and pulmonary symptoms or signs.

**A CASE OF SINUSITIS AND GENERALIZED WEAKNESS.** R. Dev[1], M. Bustamante[1], G. Prakash[2]; [1]Oakwood Hospital and Medical Center, Dearborn, MI; [2]Oakwood Healthcare System, Dearborn, MI *(Tracking ID #51887)*

LEARNING OBJECTIVES: To formulate an appropriate work-up for a patient with a thymoma and infection.
CASE INFORMATION: A 45 year-old learning-disabled white male presented to the ER complaining of sinusitis and increasing weakness. The patient stated that two months previously he developed a sinus infection that prevented him from working. While recuperating at home, he developed a productive cough and became bed bound secondary to generalized weakness. The patient denied any significant past medical or social history. Examination revealed a cachectic white male in acute respiratory distress. The pulse was 142 with a respiratory rate of 45. Oral thrush and a dry oral mucosa were noted. Chest exam revealed bilaterally decreased breath sounds and tachycardia. Laboratory evaluation was notable for WBC 29.8, BUN 42, and Cr 1.6. An HIV test was negative. Chest x-ray showed a widened mediastinum and a right upper lobe pneumonia. The patient was intubated and started on IV antibiotics and hydration. A CT scan revealed a 4 x 7 x 6 cm anterior mediastinal mass. Biopsy showed a spindle cell thymoma. Blood cultures were positive for H. influenza, Strep. hominis, and candida. The sputum culture grew Group B Streptococcus. The patient remained febrile and tachycardic despite therapy. Nerve conduction and acetylcholine receptor antibody studies were negative for myasthenia gravis. Immunoglobulin levels were low (IgG 223 (635 – 1612), IgA 16 (82 – 360), IgM (23 – 202)) and B cells were absent in peripheral blood by flow cytometry. The patient was diagnosed with Good syndrome and treated with IV immunoglobulin. He recovered and subsequently underwent thymectomy.
DISCUSSION: Thymoma is associated with a variety of paraneoplastic disorders; the most clinically important are myasthenia gravis, pure red cell aplasia, and hypogammaglobulinemia. Good Syndrome is a rare constellation of thymoma and adult-onset immunodeficiency characterized by low or absent B cells in peripheral blood, hypogammaglobulinemia, and CD4 T lymphopenia. Development of infection in a patient with thymoma mandates an early and comprehensive immunologic and microbiologic investigation. Immunological investigations should include the number of peripheral B cells, CD 4 and CD 8 Tcells, and quantitative serum immunoglobulin levels. Thymectomy does not lead to recovery of immune function. IV immunoglobulin has been shown to improve the control of infections, to reduce hospitalizations, and decrease the use of antibiotics.

**PERNICIOUS ANEMIA IN A YOUNG WOMAN WITH SICKLE CELL ANEMIA: POSSIBLE EXACERBATION OF MYELONEUROPATHY DUE TO FOLATE SUPPLEMENTATION.** M. Dhar[1], R. Bellevue[1], R. Carmel[1]; [1]New York Methodist Hospital, Brooklyn, NY *(Tracking ID #52205)*

LEARNING OBJECTIVES: Folate supplementation is given routinely to patients with sickle cell anemia (SCA), regardless of the patient's folate status. This routine use of folate is thought to be harmless because vitamin B12 deficiency is believed to be rare in these patients. Therefore, we report a young patient with SCA who developed pernicious anemia (PA) while taking folic acid.
CASE INFORMATION: Our patient is a 29 year old African American woman with SCA, who presented to us for an initial evaluation and was noted to have an unsteady gait. On further questioning we found that she had this symptom for about a month's duration. She also noted reduced sensation on the plantar aspect of her feet. She had been taking 1 mg of folic acid daily, which she had stopped one month before. She had been receiving blood transfusions for several months. The last transfusion had been one month previously. She noted that her hemoglobin (Hgb) levels stayed low despite these transfusions. Her past medical history included gall stones, eczema and tubal ligation many years back. The most significant physical finding besides pallor was a strongly positive Romberg's sign. Laboratory data showed a Hgb of 5.4g/dl and a mean corpuscular volume of 104.2 fl. The severe anemia was thought to be due to hemolysis and folate supplementation was restarted. Because her Hgb level did not respond to a single unit of packed red blood cell transfusion, hydroxyurea was given to help increase her Hgb level. The hydroxyurea was quickly discontinued when an entirely different cause emerged for her clinical presentation. The peripheral smear showed macroovalocytes and hypersegmented neutrophils. A bone marrow aspirate confirmed the megaloblastic anemia. A vitamin B12 level of 124 pg/l was noted and its deficiency was confirmed by demonstrating marked increases in methylmalonic acid (>10000 nmol/l) and homocysteine levels (240 ug/l). The patient also had intrinsic factor antibody and an elevated gastrin level (1062 ng/l), which established the diagnosis of PA.
DISCUSSION: PA is probably not a rare event in SCA, as predicted by observations that PA occurs disproportionately often in young black women and the findings in our patient who is now the fourth published case of PA in SCA. This demonstrates the need for periodically screening patients with SCA who are on folate supplements for vitamin B12 deficiency. Such deficiency should always be suspected if a patient with SCA develops worsening anemia. Our patient also may illustrate the neurological complication that can arise when the diagnosis of vitamin B12 deficiency is delayed while the patient is taking folic acid.

**NOT JUST ANOTHER CASE OF HEARTBURN.** S. Dronavalli[1], D.W. Brady[1]; [1]Emory University, Decatur, GA *(Tracking ID #52019)*

LEARNING OBJECTIVES: 1. Recognize Lofgren's syndrome and the difficulty in diagnosing sarcoidosis. 2. Learn when to work-up acid reflux complaints in the face of comorbid symptoms.
CASE INFORMATION: A 49 yo African-American female presents to our walk-in clinic with a chief complaint of acid reflux for the last month. The heartburn is worst at night, and she has been sleeping on 3 pillows for the last month to avoid an acid taste in her mouth. She recently was given lansoprazole by an outside physician with no relief of her symptoms. Upon further questioning, she reports that she has had 2 – 3 episodes of vomiting while taking the lansoprazole. Additionally, she has felt food "getting stuck" when she swallows and has had multiple episodes of regurgitation. Her current diet consists of mostly pureed foods. She has lost 15 pounds in the last three months. She denies any cough or dyspnea. There is no personal or family history of cancer, and the patient does not drink or smoke. A barium swallow shows significant extrinsic compression of the distal two-thirds of the esophagus. She is scheduled for an outpatient chest CT but prior to her appointment presents to the emergency room with lower extremity swelling and painful nodules on her legs. She also reports general malaise and pain with movement of either ankle that she associates with the swelling. A CXR shows a left lower lobe calcified granuloma and calcified hilar nodes. Chest CT shows calcified granulomas in the lung and calcified hilar nodes as well as a posterior mediastinal mass from the upper esophagus to the stomach. Given a presumptive diagnosis of sarcoidosis (Lofgren's Syndrome), the patient is empirically begun on prednisone. Biopsy reports from the nodules on her legs show erythema nodosum. Her swelling and nodules clear within 4 days, and she is able to return to a normal diet without any regurgitation.
DISCUSSION: Lofgren's syndrome, a particular presentation of sarcoidosis, is a clinical diagnosis based on erythema nodosum, hilar adenopathy, arthralgias, and fever. It is associated with a good prognosis, and treatment includes glucocorticoids and supportive care. Although this patient presented with typical gastroesophageal reflux (GERD) complaints, her weight loss, regurgitation, and dysphagia are outside the range of typical acid reflux symptoms. In such cases, patients presenting with GERD symptoms require a broader work-up. The differential diagnosis should include malignancy and other mediastinal masses, such as the adenopathy associated with sarcoidosis.

**A RARE CASE OF SUBCUTANEOUS INJECTION OF METALLIC MERCURY.** O. Edoro[1]; [1]Cook County Hospital, Chicago, IL *(Tracking ID #52450)*

LEARNING OBJECTIVES: 1. Recognize the difference between metallic mercury toxicity and inorganic mercury toxicity. 2. Review the treatment of this rare entity.
CASE INFORMATION: A 31-year-old Belize lady with a 3 year history of injecting herself with metallic mercury because of a local belief that it will give her strength was admitted because of infected injection site in the mouth. She presented with fever, abdominal pain, weight loss. On examination, she was found to be lethargic, febrile and hypotensive with a malodorous ulcer in her mouth. She also had dark nodular lesions on her knuckles and face at the injection sites. CBC and reticulocyte count revealed a hypoproliferative anemia, X-ray of the mandible, neck, chest, hands and knees revealed widespread radio-opacities and biopsy of the skin lesion revealed granulomatous reaction with presence of foreign body giant cell surrounding foreign body material. The blood level of mercury was 3380 micrograms/L (normal, <36 micrograms/L) and urine level was 11,000 micrograms/L (normal, <15 micrograms/L. The patient was subsequently hydrated and treated with antibiotic combined with oral toileting with improvement in her general condition. The lethargy on presentation was initially thought to be due to the timidity associated with erethism but its resolution with hydration invalidated that thought. She did not show any evidence of toxicity on admission. Subsequently her mouth ulcer did not completely heal and months later she developed proteinuria and renal failure. She subsequently died as a result of renal failure in Belize.
DISCUSSION: Subcutaneous injection of mercury is not commonly associated with toxicity. Local granulomatous reaction occurs at site of injection. Treatment primarily involves surgical excision of granulomas and monitoring of serial blood and urine level of mercury. Surgical excision was impractical in this particular case because of the large amount of area covered. The value of chelation is questionable since this can increase the renal burden of mercury excretion and unexcised lesions serves as a limitless reservoir of mercury.

**CATS AND DOGS AND NEBULIZERS: A CAUTIONARY TALE.** S. Elachkar[1], R.D. Hobbs[1], N. Lekas[2]; [1]Oakwood Healthcare System, Dearborn, MI; [2]Trinity Healthcare System, Pontiac, MI *(Tracking ID #52115)*

LEARNING OBJECTIVES: To recognize that Pasturella multocida, although most commonly thought of as a wound pathogen following animal bites, can be infective in an aerosolized form. To underscore this point we describe a case of P. multocida empyema that was acquired in a distinctly novel and unusual manner.
CASE INFORMATION: A 42 year-old woman with COPD, treated by inhaled steroids, presented with pleuritic chest pain, fever and dyspnea. Physical exam and radiologic studies revealed a loculated pleural effusion. Pleural fluid cultures grew Pasturella multocida. She recovered following thoracotomy with decortication, chest tube drainage and a six week course of Amoxicillin plus Clavulanate. The source of her infection was unexplainable until further questioning revealed that she allowed her pet cat to bite and lick the mouthpiece of her nebulizer and to use it as a play toy.
DISCUSSION: Pasturella multocida, a gram negative coccobacillus is known primarily as a wound pathogen following the bites of animals who naturally harbor it in their mouths (cats 50 – 90%, dogs 50 – 66%). Cat bites, although less frequent than dog bites (10 – 30% vs. 70 – 90%), are more frequently infected (65% vs. 35%). The respiratory tract is the second most common site for P. multocida infections. Published case reports describe epiglottitis associated with inhalation of contaminated material and peritonitis associated with a cat biting a Tenchoff catheter. There is one documented case of pneumonia caused by a cat licking and playing with a nebulizer. The current vignette is the first empyema case associated with such an occurrence. It should serve as a cautionary tale to physicians and pet lovers alike that healthy animals may transmit disease and that patients with lung problems should be particularly careful around their pets.

**LIFE THREATENING RECTAL DISCHARGE.** E.H. Elbadawy[1], R. Delaroca1[1]; [1]Fairview Hospital, Cleveland, OH *(Tracking ID #46265)*

LEARNING OBJECTIVES: 1-To recognize rectal villous adenoma as an etiology for life threatening depletion syndrome. 2-To recognize pre-renal failure as a presentation of rectal villous adenoma. 3-To understand that prompt diagnosis, correction of electrolyte and fluid imbalance and surgical resection is life saving in patients with secretory rectal villous adenoma.
CASE INFORMATION: The patient is a 72 year old white male who presented with recurrent syncope for the past few weeks, with 6 episodes in the past month. Episodes usually occur suddenly without any warning symptoms or relation to any particular posture. He usually remains unconscious for 2 minutes and regains consciousness spontaneously. He denied any associated chest pain, palpitations, sweating, convulsions, muscle twitches, tinnitus,

blurring of vision, diarrhea, polyuria, nausea, vomiting, bladder or bowel incontinence. Past medical history was significant for hypertension, Hodgkin's lymphoma treated 25 years ago and gout. The patient reported occasional orthostatic dizziness of one year duration. Upon further questioning, the patient indicated that he had clear mucoid rectal discharge for 2 years. On examination blood pressure was 177/90 supine and 141/70 standing, afebrile and in no acute distress. The rest of clinical examination was normal, including rectal exam. Laboratory evaluation revealed: Sodium: 125 mmol/L, Potassium: 2.5mmol/L, Chloride: 80mmol/L, Bicarbonate: 31mmol/L, BUN: 37mg/dl Creatinine: 2.3mg/dl, Calcium: 9.6mg/dl, Magnesium 1.8mEq/L and normal cardiac enzymes.An electrocardiogram revealed sinus tachycardia at a rate of 127 and Q-waves in anterior precordial leads.An echocardiogram showed mild hypokinesis of the anterior wall of the left ventricle. Left-sided cardiac catheterization and magnetic resonance imaging of the brain were normal. Patient underwent colonoscopic evaluation which revealed a rectal mass covered with mucoid discharge. Biopsy showed tubulovillous adenoma. Patient underwent abdomino-perineal tumor resection after electrolyte replacement and fluid resuscitation.
DISCUSSION: Villous adenomas of the rectum occurs in 1 to 3 percent of tumors of the rectum and they are known to cause a depleting syndrome characterized by electrolyte imbalance, dehydration, prerenal failure and in severe cases death due to arrhythmias and cardiovascular collapse. Typical daily losses are 1.5 – 3.5 liters containing: Sodium 40 – 160 mmol/L (120 mmol/L). Chloride 80 – 165 mmol/L (123 mmol/L). Potassium 15 – 105 mmol/L (60mmol/L). Rectal losses of sodium chloride are isotonic whereas the potassium losses are often 10 times greater than serum concentration suggesting active secretion of potassium. Cyclic adenosine monophosphate and prostaglandins are implicated as possible etiologic agents in cases of severe secretory diarrhea in villous adenoma. Prompt recognition is life saving and surgical resection of the tumor is the treatment of choice.

**DIFFUSE THROMBOTIC DIATHESIS.** E.H. Elbadawy[1], M.S. Marcu[1]; [1]Fairview Hospital, Cleveland, OH *(Tracking ID #52025)*

LEARNING OBJECTIVES: 1) To recognize hypercoagulable states as potentially lethal health problem. 2) To consider the possibility of inherited hypercoagulable state in a patient with spontaneous venous and arterial thrombosis. 3) To appreciate the importance of clinical assessment in deciding for or against chronic anticoagulation.
CASE INFORMATION: A 34-year-old white male with a history of lower extremity deep venous thrombosis 6 months prior to admission, treated for 3 months with warfarin, presented with severe pain involving all extremities, increasing shortness of breath, cough and fever. He described a sudden onset of feeling like he was drugged and a transient loss of vision. On initial evaluation, the patient was found severely hypoxic, requiring 100% flow oxygen. Physical examination was notable for diminished radial and pedal pulses, as well as bilateral calf tenderness. There were no neurological deficits. A ventilation/perfusion scan done on an emergency basis revealed high probability for pulmonary embolism. Brain CT scan was consistent with a new left occipital lobe infarct. Arterial and venous duplex studies of extremities revealed bilateral femoral vein thrombosis, popliteal vein thrombosis, right femoral artery, left axillary and left subclavian artery thrombosis. Cardiac markers were elevated with a troponin I level of 1.8 ng/mL (0 – 0.39 ng/mL). A transesophageal echocardiography ruled out paradoxical thromboembolic disease through a patent foramen ovale. Work up for hypercoagulable state revealed a protein S activity decreased at 47 % (60 – 130 %) and a low normal antithrombin III level of 22 mg/dL (22 – 39mg/dL) with normal values for protein C, Factor V Leyden, homocysteine and absent lupus anticoagulant. The patient was anticoagulated with heparin and warfarin to a target INR of 3 – 4. One week later a CT scan of the abdomen was done to evaluate left lower quadrant abdominal pain and showed large retroperitoneal bleed. Warfarin was stopped and the patient required blood transfusions. On discharge, we decided in the favor of long term anticoagulation with low molecular weight heparin because the risk of recurrent significant thrombosis off anticoagulation outweighed the risk of bleeding.
DISCUSSION: Clinical manifestations of hypercoagulability can be devastating and even fatal. Patients with recurrent or spontaneous venous and arterial thrombosis may have an underlying inherited or acquired hypercoagulable state. Individuals with congenital protein S deficiency appear to experience more arterial thrombotic events, as well as stroke. About 50% of the patients with protein S deficiency experience their first thrombotic event by age 25. Management of patients with hypercoagulable state is based largely on clinical assessment. Patients with hereditary defects are divided into 2 groups: high risk group who will need life long anticoagulation and moderate risk for which prophylaxis is recommended in high risk situations.

**RECURRENT PNEUMONIA.** R.L. Elesh[1], L. Orlando[1]; [1]Tulane University, New Orleans, LA *(Tracking ID #51398)*

LEARNING OBJECTIVES: The Diagnosis of congestive heart failure should not be overlooked in patients presenting with thyrotoxicosis.
CASE INFORMATION: A 26 year-old woman with recurrent pneumonia presented to the emergency department seven days after her last hospitalization complaining of dyspnea, fever and lower extremity edema. Her only other history included Grave's disease treated with thyroid radioablation eight days prior to admission, when hepatic dysfunction necessitated discontinuation of propylthiouracil. On physical exam she had a temperature of 102.6 degrees, 126 pulse, proptosis, icteric sclera, jugular venous distension, right-sided diminished breath sounds, and bilateral pitting edema. Otherwise, the exam was noncontributory. A chest radiograph confirmed the presence of a pleural effusion which fluid analysis identified as an exudate. Her bilirubin and TSH were elevated. Echocardiography demonstrated tricuspid and mitral regurgitation, a normal ejection fraction and elevated pulmonary artery pressure. A presumptive diagnosis of thyrotoxicosis complicated by high-output heart failure was made; although she initially responded to treatment, she ultimately required mitral valve replacement.
DISCUSSION: The diagnosis of congestive heart failure should not be overlooked in patients presenting with thyrotoxicosis. Fever and pulmonary infiltrates can mimic pneumonia leading to poor outcomes, but fever is also common with thyroid storm. Both fever and hepatic dysfunction, which were initially attributed to pneumonia and medication toxicity, respectively, are common presentations in thyroid storm. Upon re-evaluation, her findings were more consistent with elevated venous pressure than with infection and prompted the search for cardiomyopathy. Hyperthyroid cardiomyopathy initiates a high-output heart failure which resolves with treatment of the thyroid disorder. Appropriate screening and careful assessment of hyperthyroid patients with pulmonary complaints may minimize cardiac morbidity.

**A SERIOUS COMPLICATION OF A SINUS INFECTION.** N.F. Ewing[1], B.L. Houghton[1], L. Brown[1]; [1]Creighton University, Omaha, NE *(Tracking ID #52184)*

LEARNING OBJECTIVES: 1) Recognize the clinical manifestations of orbital cellulitis. 2) Choose appropriate antibiotic treatment and for management of orbital cellulitis. 3) Recognize when surgical intervention is necessary for therapy.
CASE INFORMATION: The patient is a 14-year-old male who presented to clinic after approximately 10 days of sinusitis symptoms. He complained of 24 hours of fever (101 F-oral), left periorbital swelling and redness, and pain with lateral eye movement. There had been a tingling sensation in the left nasal bridge just prior to onset of the swelling. On exam, he was found to have mild to moderate periorbital edema without obvious proptosis. Upon extraocular muscle ROM testing, he experienced significant difficulty in looking to the left: in fact to accomplish this, he would close his eyes, turn his head, then reopen his eyes. CT and MRIs of the orbits revealed polypoid pansinusistis with ethmoid breakthrough; resulting in a left medial orbital abscess with compression on the medial rectus muscle. The patient was immediately hospitalized and started on intravenous (IV) antibiotic therapy. ENT and Opthamology consults were obtained and the next morning, he underwent left orbital decompression with ethmoidectomy, bilateral maxillary anstrostomies, and polypectomy. He completed a ten-day course of IV antibiotics. At his one-month follow-up visit, there was no recurrence of symptoms. Visual acuity was 20/20 and repeat sinus CT revealed healthy sinuses.
DISCUSSION: Orbital cellulitis occurs in one to three percent of patients with acute sinusitis. Because the orbit is bordered on three sides by sinuses, only separated by a thin bony barrier (laminina papyracea), sinusitis may predispose one to develop orbital cellulitus. The ethmoid sinuses are especially at risk for breaking through into the orbit, as demonstrated by the present case. In the past, H.influenzae was the primary pathogen, however now in the era of HIB vaccination, other pathogens are more commonly identified: namely S.aureus, streptococci and non-spore-forming anaerobes. Orbital complications of sinusitis (cellulitis, abscess, intracranial extension) and can be associated with significant morbidity (1 – 2%) or vision loss (3 – 11%) if not rapidly recognized and treated.

**A TRAVELER'S MISTAKE.** S.B. Fazio[1], K. Mercer[1], D.Z. Sands[1]; [1]Harvard Medical School, Boston, MA *(Tracking ID #50771)*

LEARNING OBJECTIVES: 1. Recognize the clinical features of malaria in a recent traveler to an endemic area. 2. Recognize the importance of prophylaxis and the complications of the disease if diagnosis is delayed. 3. Appropriately triage the outpatient with a suspected diagnosis.
CASE INFORMATION: A 38 year old Haitian female presented to the outpatient clinic complaining of 12 hours of fever and chills associated with arthralgias, myalgias, and frontal headache. The patient denied neck stiffness, photophobia, cough, shortness of breath, dysuria, abdominal pain, nausea, vomiting, diarrhea, or rash. PMH was significant for gestational diabetes and anemia. Medications included prn ibuprofen. She was married with two children and denied history of IVDU. The patient had recently returned from a 28 day trip to Nigeria with her family. She had taken mefloquine weekly while traveling, but had discontinued it on arrival home five days before. On exam, she was febrile to 101.8, but otherwise very well appearing. Fundi were sharp, oropharynx was clear, no nuchal rigidity was present. Pulmonary, cardiac and abdominal exams were benign and there was no rash or arthritis. CBC, blood cultures, chemistries, and thick and thin prep for malaria were sent, and the patient was sent home. That evening the lab reported a 1.4% parasitemia. The patient was brought into the hospital and begun on doxycycline and quinine. Despite this therapy, she became progressively hypoxic and was intubated on hospital day #5 for acute respiratory distress syndrome. She remained intubated for 10 days. The malaria was speciated as P. falciparum. After a protracted hospital course, the patient gradually improved and was able to be discharged home on hospital day #19.
DISCUSSION: Approximately 30,000 travelers from industrialized coutries contract malaria each year, several hundred of whom are from the United States. Patients are asymptomatic until the erythrocytic stage of the infection, typically between one to four weeks after innoculation, but symptoms may begin as early as eight days or as late as several months out. Ninety percent of travelers who contract malaria do not become ill until after returning home. Physical exam is often entirely normal. Plasmodium falciparum can rapidly lead to coma and death if not treated. Complications include seizures, renal failure, pulmonary edema/ARDS, and anemia/DIC. The mortality of severe, complicated malaria approximates 30%. Individuals raised in a malaria-endemic part of the world who reside in the US often lose partial immunity, thus on return to a malarious area are at risk for fulminant disease. It is imperative that travelers understand the importance of continuing chemoprophylaxis for the full four weeks after their return, as the medication acts as a blood schizonticide, but is ineffective against the sporozoite, thus does not prevent aquisition of the parasite. In evaluating a febrile illness in a returning traveler, it is important that physicians maintain a high index of suspicion based on location and timing of exposure to potentially life-threatening pathogens.

**CEFEPIME INDUCED NEUTROPENIA: A NEWLY RECOGNIZED COMPLICATION OF THERAPY.** D. Flora[1], V. Martin[1]; [1]University of Cincinnati, Cincinnati, OH *(Tracking ID #51051)*

LEARNING OBJECTIVES: 1. Report an important possible side effect of a commonly used medication. 2. Review the mechanisms of drug-induced neutropenia. 3. Suggest the importance of a high index of suspicion and routine monitoring in patients on long-term antibiotic therapy.
CASE INFORMATION: Cefepime is a fourth-generation cephalosporin with a broad spectrum of activity against gram-positive and gram-negative bacteria. It is gaining favor in the treatment of a wide range of infections, including pneumonia, febrile neutropenia,

intraabdominal infections, and sepsis. Neutropenia has been associated with the use of all B-lactam antibiotics although very rarely within the cephalosporin family. We present a case of neutropenia in a woman treated with an extended course of cefepime. A 32 year old healthy black female presented with a recent past history of fractures of her tibia and fibula requiring intramedullary nailing. The patient's wound became infected, requiring removal of all hardware. Wound cultures grew Pseudomonas aeruginosa and enterobacter cloacae. Cefepime 2 g IV every 12 hours and ciprofloxacin 750 mg IV q12 hours were started though a peripherally inserted central catheter. The patient was discharged to home to complete an expected 6 week course of IV antibiotic therapy. On antibiotic day 32 the patient presented with fevers to 104 degrees F, rigors and a WBC count of 0.6. (absolute neutrophil count approximately 50). Other laboratory results were normal, except for a longstanding iron deficiency anemia. She was admitted to the hospital for further management. The patient's only medicines at that time were cefepime and ciprofloxacin. Her physical examination was normal. The patient did not have any other medical history contributory to neutropenia. A hematology consultation was obtained and advised discontinuation of the cephalosporin, which was done. tobramycin therapy was substituted and vancomycin was also added after blood cultures grew coagulase-negative staphylococcus aureus. ciprofloxacin was continued as additional coverage for pseudomonas. A bone marrow biopsy performed revealed a hypercellular aspirate with left-shifted granulocytic hyperplasia suggestive of antibody-induced neutropenia, consistent with iatrogenic exposure. The patient's neutropenia resolved promptly with cessation of cefepime, and the patient improved clinically with no further intervention.
DISCUSSION: To our knowledge, this case represents the third reported case of cefepime induced neutropenia in the medical literature. As this drug continues to gain popularity, we suspect that this complication will become more prevalent. We believe that performing a weekly CBC in patients on extended courses of therapy with this drug is indicated to detect this potential complication as early as possible.

**ARTERIAL AND VENOUS THROMBOSIS: A CASE OF ANTIPHOSPHOLIPID SYNDROME IN SYSTEMIC LUPUS ERYTHEMATOSUS.** T.D. Forbes[1], E.S. Safran[1]; [1]Morehouse School of Medicine, Atlanta, GA *(Tracking ID #51901)*

LEARNING OBJECTIVES: Identify Antiphospholipid Syndrome in Systemic Lupus Erythematosus (SLE). Diagnose arterial and superficial venous thrombosis. Recognize the dangers of recurrent thrombosis.
CASE INFORMATION: 24 year old African-American woman with Systematic Lupus Erthyematosus, presented with a 3 to 4 day history of bluish discoloration of the 2nd, 3rd, 4th, and 5th digits of her left foot. She was concerned about the appearance of her toes and the pain at the tips of her toes. She also observed that the entire left foot had become cold. Prior to this admission, she was doing well, taking only tylenol on occasion for mild arthalgias of her legs and feet. Upon admission to the hospital, the patient was started on intervenous heparin and coumadin. Two days after admission, she left the hospital Against Medical Advice without completing the course of heparin therapy and with a subtheraputic INR (International Normalized Ratio). Three days later, the patient presented for an outpatient appointment with worsening discoloration of her left toes and now complaining of pain in the right great toe.(Pictures to be presented.)
DISCUSSION: The major clinical features of APS are thombosis and recurrent morbid pregnancy outcomes. Venous and arterial thombosis may occur anywhere in the body, which may lead to wide variety of clinical presentations. Other clinical features may include thrombocytopenia, hemolytic anemia, livedo reticularis, cardiac valve diease, transient cerebral ischemia, and migraine headaches. While deep venous thrombosis of the lower extremities are the most common site of a thrombotic event, any organ can be involved. A high index of suspicion for APS is required in the presence of SLE. Anticoagulation prophylaxis is necessary in APS patients who have had venous or arterial thrombosis, as these patient are otherwise likely to experience a recurrence of thrombotic events. Studies have recently suggested that an International Normalized Ratio(INR) of 3.0 is usally effective in preventing recurrent thrombosis.

**MYCOBACTERIUM AVIUM-INTRACELLULARE (MAI)PNEUMONIA IN AN IMMUNOCOMPETENT NON-SMOKING FEMALE.** B. Freda[1], M. Haddad[1], J. Chapman[1], R.K. Avery[1]; [1]Cleveland Clinic Foundation, Cleveland, OH *(Tracking ID #52423)*

LEARNING OBJECTIVES: 1. Review the evaluation of non-resolving pneumonia. 2. Review the clinical manifestations and treatment of MAI pneumonia in immunocompetent adults without underlying lung disease.
CASE INFORMATION: A 61 year-old non-smoking, Puerto Rican female presented with cough, brown sputum, fevers and fatigue starting six weeks earlier. After a ten day course of clarithromycin she had clinical improvement, however, three weeks later she redeveloped the same symptoms. A ten day course of moxifloxacin was unsuccessful. CXR showed bibasilar interstitial and alveolar infiltrates. While hospitalized she received cefepime, levofloxacin, fluconazole and imipenem. She was then transferred to Cleveland Clinic with stable vital signs and SpO2 of 95% on room air. Physical exam revelaed a thin female in no respiratory distress with decreased breath sounds at the bases. Testing included a negative HIV ELISA, negatibe blood/urine cultures, normal differential, hemoglobin 10.2, platlets 553, WBC 106 and CRP 16.7. NAN, ANCA, fungal serology, legionella urine antigen, chlamydia/mycoplasma IgM wre non diagnostic. PPD was non-reactive/non-anergic. CT scan revealed a necrotizing right lower lobe infiltrate with bilateral aprenchymal nodules. She received vancomycin, imipenem and itraconazole. Bronchoscopy was grossly normal. Biopsy showed acute organizing pneumonia without viral inclusions, granulomas or malignancy. She was discharged on ciproflozacin, ethambutol and azithromycin.
DISCUSSION: The differential diagnosis of non-resolving pneumonia is broad and many cases ar edue to inadequate antibiotic therapy. We present a case of a chronic necrotizing, nodular pneumonia that progressed despite treatment with broad antimicrobial coverage. Extensive evaluation revealed MAI as the pathogen. MAI infection is classically seen in HIV-positive patients, causing pulmonary and disseminated disease, however, it has been described in HIV-negative patients without obvious underlying pulmonary disease or immune dysfunction. Most cases have been described in older, non-smoking females. Multidrug treatment with a macrolide, ethambutol, and a rifamycin is recommedned until the patient is culture-negative for 12 months. The therapy is poorly tolerated, with high treatment failure rates. Surgical therapy is sometimes indicated in selected patients.

**SAFE REPRODUCTION IN AN HIV DISCORDANT COUPLE.** S.L. Fultz[1], R.M. Arnold[2]; [1]Center for Health Equity Research and Promotion, VA Pittsburgh Healthcare System, Division of General Internal Medicine, University of Pittsburgh Medical Center, Pittsburgh, PA; [2]Division of General Internal Medicine, Section of Palliative Care and Medical Humanities, University of Pittsburgh Medical Center, Pittsburgh, PA *(Tracking ID #50778)*

LEARNING OBJECTIVES: recognize that the biological drive to reproduce is not effected by HIV positivity; recognize the challenges associated with reproduction in HIV discordant couples; learn techniques for assisting HIV discordant couples with reproduction.
CASE INFORMATION: CM is a 27 y/o HIV positive male followed in the HIV Primary Care Clinic, currently maintained on zidovudine, lamivudine and efavirenz with a CD4 count of 643 cells/ml and HIV viral load of 23,092 copies/ml. CM attended a routine clinic visit with his significant other (JD) who is HIV negative and who recently learned of CM's HIV status. During the course of this visit, it was learned that the couple desired to have a biological child. The drive for an offspring was so strong that they had been having unprotected intercourse in an attempt to become pregnant, despite JD's concerns regarding the risk of her acquiring HIV infection.
Initially, the couple was counseled to discontinue unprotected intercourse until further options could be assessed. A literature search was done, along with searching the Internet and speaking with obstetricians and infectious disease specialists specializing in the management of HIV positive patients.
DISCUSSION: While masturbation followed by artificial insemination is an available option when the female member of the couple is HIV infected, options are less appealing when the male is HIV infected. Options that were discovered included: timed unprotected intercourse using an ovulation monitor, sperm washing to reduce HIV infectivity, testing semen for HIV via PCR, alone or in association with sperm washing, post-exposure prophylaxis for the female partner and intracytoplasmic sperm injection. While minimizing the patient's viral load in blood hypothetically will decrease seminal infectivity, this has not been corroborated in laboratory studies.
The studies presented in the literature are primarily case series and small, uncontrolled cohorts. None of these methods have been subjected to rigorous, controlled testing to determine if they reduce the risk of HIV infection while allowing for pregnancy. Because of legal and ethical considerations and costs, many of these options are not available to most patients.
The couple was presented with the options along with the unknown risks and benefits. They chose to delay attempts to become pregnant until after their upcoming wedding.

**PHENYTOIN HYPERSENSITIVITY SYNDROME: RECOGNIZING THE SIGNS AND SYMPTOMS.** S. Gala[1], D.W. Brady[1]; [1]Emory University, Decatur, GA *(Tracking ID #52164)*

LEARNING OBJECTIVES: 1. Recognize the signs and symptoms of phenytoin hypersensitivity syndrome. 2. Recognize the potential for fatal hypersensitivity reaction with carbamazepine and phenobarbital in individuals with phenytoin hypersensitivity syndrome.
CASE INFORMATION: A 29 year old black female, with a past medical history of poorly controlled hypertension and end stage renal disease recently started on hemodialysis, presented with complaints of burning pain in both feet, subjective fevers for the past four days, and sore throat and facial swelling for the past three days. She later mentioned the presence of a red rash over her torso and thighs that spontaneously resolved a few days back. Three weeks prior to this admission, she had been seen at an outside hospital for new onset generalized seizures and hypertensive emergency. There, she was started on phenytoin. After a full work up at the outside hospital, her seizures were thought to be secondary to either uremia or uncontrolled hypertension. On exam at our facility, she was febrile with a temperature of 39.8, and her blood pressure was 155/73. She had a tender 1 cm lymph node in the right cervical area with no pharyngeal erythema or exudates. Heart, lung and abdominal exam were unremarkable. She had a burning pain in both feet that was unchanged with palpation or activity, and the rest of her neurological exam was normal. Extensive work up of her fever - which included blood cultures, urine culture, HIV test, mono antibody test, hepatitis panel, rapid step test, TSH, and CXR - revealed no infectious source, yet she continued to have high spiking fevers. She had a positive ANA at 1:1280 and an elevated sed rate at 94; however, further studies including anti-DNA, anti-histone, SM titer, SCL70, C3, C4, cytoplasmic antibody were all negative. EMG and nerve conduction studies of her lower extremities were normal. During her hospitalization, her phenytoin level was undetectable. She had a seizure during hemodialysis and was given a phenytoin load via IV. The next day, she had a diffuse erythematous morbilliform rash especially involving her chest, abdomen and thighs. It was concluded that many of her signs and symptoms could be from a hypersensitivity reaction to phenytoin. The drug was stopped which resulted in resolution of her fever, rash, sore throat, and lymphadenopathy over the next 3 days. The pain in her feet also improved.
DISCUSSION: Phenytoin hypersensitivity reaction is typically characterized by fever, morbilliform rash, diffuse lymphadenopathy, periorbital/facial edema, and hepatitis. Myalgias, arthralgias, and pharyngitis can also be present. The reaction usually begins 2 to 3 weeks after initiation of therapy and can occur even if the phenytoin level is undetectable. The most common cause of death from a phenytoin hypersensitivity reaction is due to hepatic necrosis, which, if it occurs, carries a mortality rate between 18 to 40%. This syndrome can recur if a patient subsequently receives either carbamazepine or phenobarbital. Thus, these agents along with phenytoin should be avoided in any patient with a history of phenytoin hypersensitivity syndrome.

**SEROTONIN SYNDROME.** A.P. Gandhy[1], A.J. Varney[1], D.S. Resch[1]; [1]Southern Illinois University, Springfield, IL *(Tracking ID #51996)*

LEARNING OBJECTIVES: 1. Diagnose Serotonin Syndrome based on Diagnostic Criteria. 2. Recognize that either an inherited enzyme defect, iatrogenic cause or acquired medical

illness may be involved in precipitating serotonin syndrome. 3. Recognize the signs and symptoms of Serotonin Syndrome.
CASE INFORMATION: A 80 y/o male with severe recurrent depression admitted for syncopal episode involving the patient walking from the bathroom during which patient became lightheaded, shaky, and diaphoretic. Patient states he has been experiencing tremor and ataxia which has been substantially progressing these past few weeks. During hospitalization patient deteriorated as patient was found unresponsive, diaphoretic, and tremulous. Two hours prior patient had been awake and alert at normal functioning.
DISCUSSION: Serotonin Syndrome is a serious complication of SSRI, TCA, and MAOI as well as other serotonergic medications. It has a 12% mortality. Before making diagnosis of serotonin syndrome, exclude other medical illnesses. It is important to note that particular hepatic, pulmonary, or cardiovascular diseases may make patient more prone to Serotonin Syndrome. Recognition and treatment are important so that medications can be discontinued as well as implementing treatment and monitoring for the complications that can be associated with Serotonin Syndrome.

**Pathogenesis of Serotonin Syndrome**

| Inherited | Acquired | Iatrogenic |
|---|---|---|
| Low endegenous MAO inhibitor | Ethanol abuse | MAOI |
| Hypertension | Hepatitis | SSRI |
| HYperlipidemia | Tobacco abuse | venlafaxine |
| | Cardiovacular dz | Tertiary amine Tricyclic |

**PSEUDOMEMBRANOUS COLITIS CAUSED BY ANTIBIOTIC PROPHYLAXIS TREATMENT PRIOR TO A SCREENING SIGMOIDOSCOPY.** D. Garcia[1], B. Chernof[2], L. Mankin[1]; [1]Greater LA VA Health Care System, Sepulveda Ambulatory Care Center, Los Angeles, CA; [2]University of California, Los Angeles, Los Angeles, CA *(Tracking ID #51922)*

LEARNING OBJECTIVES: Recognize risks associated with use of antibiotic prophylaxis prior to sigmoidoscopy. Review current guidelines for endocarditis prophylaxis prior to sigmoidoscopy. Recognize the clinical features of antibiotic-associated colitis.
CASE INFORMATION: A 59-year-old male with a history of hypertrophic cardiomyopathy underwent a screening flexible sigmoidoscopy. The endoscopist heard a III/VI holosystolic murmur parasternally. The patient was given Gentamicin and Ampicillin one hour prior to the procedure. The procedure was tolerated without significant discomfort and the findings were unremarkable. Later that evening, he had watery diarrhea and crampy, diffuse abdominal pain. He noticed bright red blood on his stools on day 2 pain continue to worsen. On day three, he was admitted complaining of worsening nausea, fevers and bloody diarrhea. The patient was in moderate distress; had orthostatic blood pressure, and a low-grade fever. The abdominal exam showed voluntary guarding and tenderness to deep palpation. A gastrografin enema was done showing subserosal dissection of the gastrografin between the serosa, muscularis layer, and the intestinal lining at the level of the transverse colon. At this time the presumed diagnosis was a colonic dissection secondary to the sigmoidoscopy. He was given IV antibiotics and vigorously hydrated but he continued to worsen with increasing abdominal pain. On day four, an exploratory laparotomy was performed showing a friable, bloody transverse colon consistent with possible ischemic colitis. He had a subtotal colectomy consisting of a portion of ileum, cecum, appendix, ascending colon, and transverse colon- a total of 65 cm in length. Pathology of the colon removed confirmed a diagnosis of acute Pseudomembranous colitis without evidence of ischemia or perforation.
DISCUSSION: There is insufficient data to make firm recommendations to treat with antibiotics prior to sigmoidoscopy, even in patients with high-risk conditions (prosthetic valves or a history of endocarditis). For hypertrophic cardiomyopathy or other acquired valve dysfunction, antibiotics are NOT recommended for sigmoidoscopy with or without biopsy. Clinical manifestation of Clostridium difficile colitis varies. Frequent watery diarrhea can begin abruptly at anytime of initiating antibiotic use. The symptoms can progress to anorexia, worsening abdominal pain, fevers, bloody stools. Psuedomomebranous colitis is an uncommon complication that should be considered in the differential in any patient with diarrhea after receiving antibiotics.

**DIPHTHERIA. AN UNIQUE PRESENTATION AND A DIAGNOSTIC CHALLENGE.** J.A. Garcia[1]; [1]Wayne State University, Troy, MI *(Tracking ID #45830)*

LEARNING OBJECTIVES: Physicians should be aware of the incidence and different presentations of highly contagious diseases, especially like diphtheria, to avoid inappropriate diagnosis and management.
CASE INFORMATION: 19 year old Vietnamese female with no past medical history or recent travel presented with increasing inability to swallow for 5 days, respiratory distress, dyplopia and fever. Upon admission she was found to have an occluding yellow-green membrane in her pharynx requiring tracheotomy. She was hypotensive and tachycardic requiring fluid resuscitation, ICU admission and subsequent vasopressors. During day 1 she was found to have increase troponins and new ST-T EKG changes on the anterior leads consistent with increase troponins. An ECHO was done and showed an EF= 10% and global hypokinesis. A PA catheter was inserted showing low cardiac indexes and output. Blood and membrane cultures were sent to the laboratory and also to the CDC, and the diphtheria antitoxin was given. Subsequently developed otitis media and severe facial swelling on day 2 – 3 post admission. She required decreasing doses of vasopressors by day 5 – 6. Appropriate work-up was done for her dyplopia showing negative head CT results and normal neurologic exam. Multiple blood culture collections were done and all of them were negative for diphtheria but PCR and CDC was positive for diphtheria on day 6. Follow up ECHO on day 7 was done showing improving EF. Patient was successfully discharged with a PEG and evolving positively.
DISCUSSION: Our patient was diagnosed with diphtheria complicated by myocarditis, dyplopia and respiratory involvement. The difficulty in the diagnosis was based on the negative result of the multiple cultures sent but fortunately having a positive membrane culture by PCR (from CDC). We would like to stress the importance of establishing a good differential and the early management of the disease with anti-toxin especially in the absence of cultures. It is also important to note that the use of anti-toxin is only effective on the initial phase of the disease when cultures will always be unavailable. We as physicians should be aware of the presentation of not commonly encountered diseases specially when early management is crucial.

**EMBOLIC MYOCARDIAL INFARCTION IN A PATIENT WITH TRYCUSPID ATRESIA. A UNIQUE PRESENTATION.** J. Garcia[1]; [1]Wayne State University, Troy, MI *(Tracking ID #45832)*

LEARNING OBJECTIVES: As much as 5 % of myocardial infarctions may have an embolic etiology. Physicians should be aware of uncommon presentations of common diseases. Thromboembolic disease in surgically corrected tricuspid atresia is one interesting example.
CASE INFORMATION: 26 year old Hispanic male with congenital tricuspid atresia had a blaloch procedure at 16 months and a fontan operation at age 18. He presented with typical chest pain, elevated cardiac biomarkers, and EKG changes consistent with an anterior wall myocardial infarction (AMI). There were no clinical findings upon physical exam, no risk factors for coronary artery disease and no history of drug use. Cardiac catheterization showed normal coronary arteries and a normal functioning fontanogram with no evidence of disease and EF=15%. Hospital course was complicated by acute onset of abdominal pain consistent with left kidney infarct. Hypercoagulable workup was negative.
DISCUSSION: Thromboembolic disease is an important complication of fontan operations. This patient presented with cardiac and kidney infarctions unexplained by coagulation studies and cardiac catheterization raising the possibility of fontan related thromboembolic disease. Even though the etiology of embolic disease in fontan operations is unknown it is hypothesized to be multifactorial. Possibilities include 1) Passive flow pulmonary circuit 2) Low flow state secondary to a unfunctional RV 3) and global ventricular dysfunction in the univentricle.

**PANCREATIC ADENOCARCINOMA PRESENTING AS PANCREATITIS.** D. Garrow[1]; [1]New Hanover Regional Medical Center, Wilmington, NC *(Tracking ID #50543)*

LEARNING OBJECTIVES: 1) Acknowledge that pancreatic adenocarcinoma may present initially as pancreatitis. 2) Assess the management of new-onset pancreatic lesions. 3) Recognize that all initial presentations of peritoneal ascites should receive a diagnostic evaluation.
CASE INFORMATION: The patient is a 53 year-old heavy smoker, alcoholic and cocaine abuser who presented with complaints of abdominal pain. Serum lipase was 2,626 U/L. The patient was admitted with the diagnosis of new-onset pancreatitis. A CT of the abdomen found a 2 cm focal hypodense area in the neck of the pancreas with no pseudocyst observed. The patient was discharged after three days with improved abdominal pain. Four months later the patient was admitted with new-onset ascites. He complained of similar epigastric pain as before with radiation to the back. Serology revealed lipase of 135 U/L, amylase 25 U/L, total protein 6.2 mg/dL and albumin of 2.7 g/dL. A CT scan of the abdomen with contrast revealed massive ascites along with multiple intra-abdominal fluid collections consistent with multifocal pseudocysts. Numerous small low attenuations were seen in the liver. A paracentesis was performed which revealed a lipase of 23 U/L, amylase 25 U/L, LDH 190 U/L, total protein 4.0 g/dL and albumin 2.3 g/dL. Noteworthy were "atypical cells" in the ascitic fluid. Cytology revealed these cells to be malignant adenocarcinoma cells from the pancreas (positive for CK7, negative for CK20). Further staining was negative for mucicarmine. The diagnosis of malignant adenocarcinoma of the pancreas was made. The patient received supportive care. He died one month later.
DISCUSSION: Pancreatic cancer may initially present with elevated pancreatic enzymes and must be considered in the differential of pancreatitis. Although it is possible this patient had two separate ongoing processes, it is more likely that ductal obstruction and paraneoplastic inflammation led to the development of multifocal pseudocysts. A follow-up CT scan of the abdomen soon after his initial presentation of pancreatitis would have shown evolvement of the lesion into either a pseudocyst or a growing mass. If the lesion was seen as a mass, further investigation may lead to earlier diagnosis of malignancy and curative surgery. All new ascites should have a diagnostic evaluation. The SAAG (Serum:Ascites Albumin Gradient) is commonly used to differentiate between portal hypertension and peritoneal carcinoma. A gradient greater than 1.1 g/dL is reported to be 97% specific for portal hypertension. A SAAG less than 1.1 g/dL is found in peritoneal carcinomas, nephrotic syndrome, serositis, tuberculosis, as well as biliary and pancreatic ascites. Our patient had a SAAG = 0.4 g/dL. Although pancreatic cancer is low in the differential of pancreatitis and often ignored, it is the gravest of all etiologies. A serological marker for pancreatic cancer "in situ" remains a goal of the medical community. In the absence of such a test, close surveillance of new pancreatic lesions to their maturity is essential.

**HEPARIN INDUCED PRIAPISM.** A George[1], A. Haddad[1], J. Zimmerman[1]; [1]Oakwood Healthcare System, Dearborn, MI *(Tracking ID #52106)*

LEARNING OBJECTIVES: To recognize priapism as a rare but potentially serious complication of heparin administration.
CASE INFORMATION: A 27-year-old man without significant past medical history presented to the ER with the sudden onset of severe retrosternal chest pain associated with nausea and diaphoresis. His medications included an occasional aspirin. His social history was remarkable only for a 17 pack-year history of cigarette smoking. Physical exam, laboratory data and chest x-ray were unremarkable. EKG showed sinus bradycardia. In the ER, IV heparin and nitroglycerin were started, and the patient was admitted for unstable angina. On arrival to the floor, the patient complained of a persistent and painful erection that had apparently begun with the initiation of heparin in the ER. Both medicines were immediately stopped (approximately five hours after initiation), but the patient's priapism persisted. Over the next twelve hours our urology consultant irrigated the corpora cavernosa on three occasions with a

diluted epinephrine solution, and ultimately performed an intrapenile shunt procedure (corpus spongiosum to corpus cavernosum) when previous efforts produced only transient detumescence. Of note, twelve hours after the heparin had been started (and subsequently stopped), the patient's platelets dropped from 384 to 288. The platelet count nadired at 246 on day #2 and returned to 306 on day #5 (there was no evidence of platelet clumping). Post-procedure doppler imaging showed good flow through the shunt.
DISCUSSION: Heparin has myriad potential complications - some more familiar than others: hemorrhage, thrombocytopenia (both immune and nonimmune-mediated), thrombosis, transaminasemia, eosinophilia, allergic skin reactions, etc. Lesser known, and as-yet-unexplained complications have also been reported, including episodes of painful, ischemic, and cyanosed limbs, and priapism. An allergic arterial vasospastic mechanism has been proposed as an explanation for the former. But in canine models of priapism, intracavernous drug injections of certain antidepressants and antipsychotics have resulted in increased arterial flow and venous resistance. Whether or not this latter mechanism produces heparin induced priapism is not known. Others have suggested that venous thrombosis or abnormal spontaneous platelet aggregation play a role in heparin induced priapism. Though our patient appeared to exhibit mild heparin induced thrombocytopenia, there was no overt clinical or laboratory evidence to suggest that his priapism was the result of thrombosis or abnormal platelet aggregation.

**DIFFUSE LARGE B-CELL LYMPHOMA PRESENTING AS THORACIC SPINE COMPRESSION FRACTURE IN A PATIENT WITH WALDENSTROM'S MACROGLOBULINEMIA(WM).** A.K. Ghosh[1], D.R. Salomao[1]; [1]Mayo Clinic, Rochester, MN *(Tracking ID #46212)*

LEARNING OBJECTIVES: 1) Identify atypical causes of compressive fractures of the spine based on careful history taking, 2) Identify potential long term complications of Waldenstrom's macroglobulinemia (WM).
CASE INFORMATION: A 78-year old woman presented in October 2001, with a history of severe upper back pain with spasms of 4 months duration. Three months ago she underwent evaluation at an outside hospital and MRI of the spine revealed a compression fracture of T- 7 spine and subsequently underwent a vertebroplasty procedure in September 2001. She noticed increased back pain and spasms since the vertebroplasty procedure and had lost 10 pounds of weight due to poor appetite. Ten years earlier, the patient had presented with fatigue and lightheadedness. Evaluations revealed an IgM kappa , IgM level of 6260 mg/dl, with a serum viscosity of 3.5 centipoise (upper limit 1.8 CP). She was diagnosed to have Waldenstrom's macroglobulinemia and treated with intermittent courses of oral Cytoxan and plasmapheresis, with good response. She was off all chemotherapy agents for the last 8 years. Physical examination revealed an elderly lady in mild distress, with kyphosis of her spine. There was no spine tenderness and straight leg raising test was negative. Rest of the examination was unremarkable. Investigation revealed a hemoglobin of 9.7 g/dl, ESR was 126 mm/hr. Serum viscosity was 2.0 CP., IgM level was 2g/dl. Plain film of the thoracic spine revealed a T-7 compression fracture with changes of vertebroplasty. MRI revealed an enhancing tumor within the pedicle , posterior elements and transverse process of T7 with paraspinal soft tissue mass and moderate compression of the spinal cord.
She underwent a total corpectomy of T-7, and partial corpectomy of T-6 and T-8 vertebra and stabilization of the spine. Biopsy from the bone and soft tissue mass revealed diffuse large B-cell lymphoma. Staging process revealed a right axillary and mediastinal lymphadenopathy. She underwent one dose of intrathecal methotrexate and Rituxan. She was discharged and follow-up arranged at her local hospital to receive R-CHOP chemotherapy in 3 weeks.
DISCUSSION: The median survival of patients with WM is 5 years. Shorter survival is usually linked with male sex, age > 60 years, absolute neutrophil count of < 1700/uL and hemoglobin < 10g/dL. Transformation of WM into lymphoblastic lymphoma, large-cell lymphoma, reticulum cell sarcoma has been described. Survival from time of transformation is very short and response to treatment is poor. Correlation of patient's past medical history with poor response of back pain to conservative therapy should heighten suspicion of worrisome causes of back pain.

**RADIATION INDUCED CHRONIC VASCULAR INJURY AFFECTING CAROTID AND CORONARY ARTERIES.** C.E. Lundstrom[1], A.K. Ghosh[1]; [1]Mayo Clinic, Rochester, MN *(Tracking ID #51454)*

LEARNING OBJECTIVES: 1. Identify radiation therapy as a cause of premature atherosclerosis. 2. Recognize characteristics of radiation induced vascular injury.
CASE INFORMATION: A 37-year-old male was seen in February 2001 for evaluation prior to a right carotid endarterectomy. In 1976 he was diagnosed with Hodgkin's lymphoma, underwent splenectomy and received mantle radiation of 2000 rads to his chest and 4000 rads to his neck. He noticed diplopia and dizziness in December 1995. Evaluation revealed a right common carotid artery (CCA) stenosis of 40 – 59%. Yearly follow-up revealed progressive increase in right CCA stenosis along with mild atherosclerosis in left CCA. In December 2000, he developed claudication of the right arm and chest tightness. EKG revealed acute inferior wall myocardial infarction.Coronary angiogram revealed right coronary artery thrombosis along with severe LAD and circumflex lesions, ejection fraction was 30%. MRA revealed high grade stenosis of distal right CCA and high grade stenosis of left CCA at its origin. The right subclavian artery (SCA) was stenotic and left SCA was small. He had a history of hyperlipidemia and tobacco use. Work up for thrombophilia was negative. He underwent a combined coronary artery bypass surgery and left aortic arch to left carotid bypass grafting. He was discharged on simvastatin, aspirin and enalapril therapy.
Examination revealed an average built male with BP 115/82 mmHg and bilateral decreased radial pulse volumes. He had a prominent right carotid bruit and cardiac evaluation revealed a Grade 2/6 systolic ejection murmur at the apex. He had livedo reticularis over both lower extremities. The rest of the exam was normal.
His subsequent course was complicated by high grade AV block, requiring permanent pacemaker placement in February 2001. He underwent right carotid endarterectomy in April 2001. However, his exercise tolerance reduced and his cardiac ejection fraction declined to 18%. He underwent orthotopic cardiac transplant along with repeat angioplasty and stenting of the right CCA in November 2001. Histology of native heart revealed radiation induced heart disease.
DISCUSSION: The etiology of accelerated vascular disease limited to the area of irradiation therapy, is very typical of radiation induced chronic vascular injury. The chronic vascular changes due to radiation include subendothelial connective tissue proliferation, disruption of elastic lamina, accumulation of smooth muscle, dense fibrosis of adventitia along with obliteration of vasa vasorum. Radiation induced vascular injury could present within months to as late as 20 years after the radiation. It is unclear if hyperlipidemia and smoking hasten atherosclerosis in predisposed patients for accelerated vascular injury. A thorough evaluation and surveillance for vascular injury is indicated in all patients with prior history of exposure to radiation.

**LOBULAR CARCINOMA OF THE BREAST MASQUERADING AS TRAUMATIC MASTITIS.** K. Ghosh[1]; [1]Mayo Clinic, Rochester, MN *(Tracking ID #50168)*

LEARNING OBJECTIVES: 1) To recognize a subtle clinical presentation of lobular carcinoma of the breast. 2) To maintain a high clinical suspicion of lobular cancer and consider early biopsy of a palpable breast mass, despite negative mammogram and equivocal ultrasound report.
CASE INFORMATION: A 40-year old Caucasian lady presented with a palpable, non-tender right breast mass. Three years earlier, the patient had sustained a severe motor-vehicle accident with multiple injuries including seat-belt injury to the right shoulder. Two years after the event, the patient noticed a painful lump in her right breast, which was diagnosed as mastitis and treated with multiple antibiotics with some resolution of symptoms. A diagnostic mammogram at this point revealed 3 nodules measuring 1cm each and ultrasound showed an irregular hypoechoic area. An ultrasound-guided biopsy of the mass showed reparative changes, resolving fat-necrosis, but no atypia. The patient had no risk factors for breast cancer. Physical examination revealed a 15cm, tender, firm mass in the right breast with no evidence of warmth or overlying skin erythema. No axillary or supraclavicular lymphadenopathy was noted. Mammogram of the right breast now revealed dense fibroglandular tissue and comparison with prior mammogram showed a reduction in the size of a small density above the right nipple. An ultrasound evaluation of the area of palpable abnormality above the right nipple showed multiple hypoechoic areas and shadowing suggestive of a resolving hematoma. An ultrasound-guided breast biopsy however, revealed invasive lobular carcinoma. At surgery, an 8x7x3.5 cm tumor was found with one of 13 lymph nodes positive for cancer. The patient underwent a right modified radical mastectomy for stage III invasive lobular breast cancer (ILC), is currently receiving chemotherapy (Adriamycin and Cytoxan followed by Taxol), will later undergo radiation therapy, and receive Tamoxifen (tumor was estrogen and progesterone receptor positive).
DISCUSSION: ILC of the breast may present as a palpable mass, but may also present as an ill-defined area of thickening in the breast. Non-specific findings on clinical breast examination as well as equivocal radiologic tests, particularly in a young patient as ours, may mistakenly be diagnosed as a benign breast change. ILC of the breast, the second most common type of primary breast cancer (5 – 10% of invasive breast cancer), is often difficult to diagnose early due to non-specific findings on both the clinical examination as well as on routine radiologic tests-mammography and ultrasound. Common mammographic findings in ILC are those of a spiculated mass or an irregular mass but the overall sensitivity of mammogram for diagnosis of invasive lobular cancer is low. The typical ultrasound appearance is that of an irregular, hypoechoic mass with acoustic attenuation. However, false-negatives and equivocal findings have been reported in up to a fourth of cases. Increased awareness of ILC as a cause of a persistent, enlarging breast mass or thickening and early establishment of a definitive diagnosis by breast biopsy is vital to ensure an optimal outcome.

**HIV-ASSOCIATED MYOPATHY IN A PREVIOUSLY HEALTHY 29 YEAR-OLD MALE.** J. Gladstein[1]; [1]Cedars-Sinai Medical Center, Los Angeles, CA *(Tracking ID #51658)*

LEARNING OBJECTIVES: 1) Recognize HIV-myopathy as a possible initial manifestation of HIV infection, 2) Discuss the work up of muscle atrophy, 3) Discuss the treatment and natural history of HIV-myopathy.
CASE INFORMATION: A 29 year-old male with no significant past medical history complained of painless bilateral shoulder weakness and muscle atrophy that begun one month prior and progressed to include lower extremities. He denied headache, neck stiffness, numbness or tingling, fever, chills, cough, and nightsweats. He had no family history of neuromuscular disorders. He is a gay male with a history of unprotected receptive anal sex and had tested negative for HIV eighteen months earlier. On exam, he was a muscular male with vitals signs within normal limits. He had atrophy and moderate weakness (3/5) of the supra and infraspinatus and deltoids bilaterally and mild proximal weakness in the lower extremities (4/5). Distal upper and lower extremity muscles were normal. Sensation was intact throughout. Deep tendon reflexes were normal in the lower extremities and hyporeflexic in the arms. Gait was normal. Lab values were significant for a serum creatine kinase of 979 IU/L. CBC, serum electrolytes, renal function, ESR, and hepatic function panel were all within normal limits. A lumbar puncture was unremarkable. Spinal MRI was normal. HIV results were positive with an absolute CD4 count of 678 and a viral load of 74,300 copies/mL. EMG and nerve conduction studies were consistant with a myopathy. Muscle biopsy revealed nemaline HIV-associated myopathy.
DISCUSSION: HIV-associated adult-onset nemaline myopathy (HAONM) is a rare disorder that may occur at all stages of HIV infection including initial presentation. Prevalance of HAONM is unknown; published reports have been limited to case studies. It is generally believed that HAONM is an autoimmune disorder not directly caused by the virus, and corticosteroids have been the mainstay of treatment. The natural history of the disorder is not well known; the severity and progression of muscle atrophy and weakness vary widely. For the general practitioner to whom such a patient may initially present, work up is the same as for any complaint of muscle atrophy and weakness: thorough history and physical, lab work including creatine kinase, EMG, nerve conduction studies, and muscle biopsy. Since our patient was an otherwise healthy male in whom we had only a suspicion of HIV, muscular dystrophies, myositis, drug-induced myopathies, denervating conditions such as ALS, and HIV-related myopathy were within our differential. Because of the rarity of the disorder, consultation with a neurologist well-acquainted with HIV was obtained. Once the diagnosis was made, this interesting case can be followed by the general internist. Antiretroviral therapy

was begun in our patient, though it is not known if this impacts progression of HAONM. This case illustrates that HIV should be considered in patients who present with similar complaints of painless weakness and atrophy.

**A WOMAN'S INTUITION: THE IMPORTANCE OF ETHNICITY AND PATERNAL FAMILY HISTORY IN ASSESSING BRCA1&2 MUTATION RISK.** A. Glassberg[1]; [1]University of California, San Francisco, San Francisco, CA *(Tracking ID #51127)*

LEARNING OBJECTIVES: (1) Recognize the importance of paternal family history in assessing BRCA1&2 mutation risk; (2) recognize that multiple primary cancers in an individual greatly increases his or her risk of being a BRCA1 or BRCA2 mutation carrier; (3) identify the importance of ethnicity in assessing BRCA1&2 mutation risk.
CASE INFORMATION: A 47 year old woman presented to her primary physician stating "I think I have the breast cancer gene." The patient's mother had been diagnosed with breast cancer at age 40. There was no other history of cancer on the maternal side of the family. The patient's father was diagnosed with pancreatic cancer at age 40. His mother had both breast cancer, at age 40, and gastric cancer, at age 65. One of the patient's paternal 1st cousins was diagnosed with breast cancer at age 33. Both sides of the family were Ashkenazi Jewish. Based upon her family history the patient was referred for genetic counseling. Despite being unaffected by cancer, her risk of being a carrier of a mutation in BRCA1 or BRCA2 was calculated to be greater than 10%. As no living affected relatives were available for mutation testing, the patient elected to be tested for the three common mutations in the Ashkenazi population. She tested positive for the BRCA2 6174delT mutation. The patient had mammography to screen for breast cancer, and CA125 with vaginal ultrasound to screen for ovarian cancer. All screening tests were normal. Though she did not have any symptoms, the patient presented to her physician stating "I just know something is wrong". She then underwent prophylactic oophorectomy. The pathology specimens revealed a 2mm focus of fallopian tube cancer. The patient received chemotherapy and is currently doing well two years after diagnosis.
DISCUSSION: Approximately 7% of breast cancers and 10% of ovarian cancers are thought to be associated with an autosomal dominant inheritance pattern. Mutations in the genes BRCA1 and BRCA2 are responsible for the majority of these hereditary cancers. Transmission can occur through both maternal and paternal lineages. In the general population, the carrier rate for BRCA1&2 mutations is 1 in 600. In Ashkenazi Jews it is 1 in 40. The possibility of a mutation should be considered for any Ashkenazi woman with early-onset breast cancer, or ovarian cancer at any age, regardless of family history. Unaffected Ashkenazi women who have more than one relative with breast cancer diagnosed at age less than 50 have close to a 20% risk of being a mutation carrier. In a recent study of patients with breast cancer1, BRCA1&2 mutations were twice as common in the presence of a reported second non-ovarian cancer. If ovarian cancer was present as a second primary cancer, 84% had a mutation in BRCA1 or BRCA2. The presence of multiple primary cancers of any kind may predict for an increased likelihood of finding a BRCA1 or BRCA2 mutation. Mutation carriers are at increased risk not only for breast and ovarian cancers, but also for cancers of the GI tract, pancreas, prostate, and fallopian tube. 1Shih, et al. Clinical Cancer Research 2000;6(11):4259-64.

**A DANCER WITH DYSPNEA.** A. Glassberg[1]; [1]University of California, San Francisco, San Francisco, CA *(Tracking ID #51313)*

LEARNING OBJECTIVES: (1) Recognize clinical features suggestive of interstitial lung disease (ILD). (2) Recognize the importance of exercise testing in the diagnosis of ILD.
CASE INFORMATION: A 46 year old professional dancer and dance teacher presented with dyspnea on exertion. She noted lethargy and disorientation immediately upon exposure to chemicals when the floor in her dance studio was redone. Dyspnea on exertion and decreased exercise capacity developed later. The patient denied wheezing, chest pain, rash, joint pain, fever, reflux, cough. She had no past medical history, was taking no medications, had never smoked tobacco, and had no family history of lung disease. Occupational exposures during the studio reflooring included trimethylbenzene, cobalt, and naphthalene. The patient had no pets, hot tub, or exposure to moldy wood. Physical exam was unremarkable. O2 sat was 100% on room air and 100% after running up 6 flights of stairs. CBC, hepatic panel, renal panel, ANA, RF, ESR were all normal, as were chest x-ray and EKG. Pulmonary function testing (PFT) revealed normal lung volumes, mildly decreased diffusing capacity, normal A-a gradient, and a mild obstructive pattern. Thin section, high-resolution chest CT revealed no evidence of pulmonary embolism or other abnormality. Dynamic exhalation chest CT was normal. With increasing work load during exercise testing, PO2 decreased, AaO2 increased and minute ventilation increased disproportionately to increasing work load as PaCO2 decreased. Video assisted thoracoscopic lung biopsy revealed small airway disease with peribronchiolar macrophages consistent with respiratory bronchiolitis. The patient's condition has improved over several months without treatment.
DISCUSSION: Dyspnea on exertion in the setting of a decreased diffusing capacity is often suggestive of ILD. When combined with exercise testing showing increasing A-a gradient, the diagnosis of ILD is essentially assured. ILD comprises a heterogeneous group of disorders encompassing infectious, neoplastic, immune-mediated, and idiopathic etiologies. Treatment should be geared to the specific disorder. The initial evaluation of the patient with suspected ILD includes history and physical, routine labs and serologies, ABG, chest x-ray and PFTs. These studies are often followed by high resolution CT, and exercise testing. Lung biopsy is often the final step in diagnosis and can be important for directing therapy. Respiratory bronchiolitis-associated ILD is a disease found almost exclusively in tobacco smokers. Other conditions associated with this disease include hypersensitivity reactions, inhalation of mineral dusts, viral infection, connective tissue disease, and drug reactions. Labs are usually nonspecific, chest x-ray may show fine reticulonodular infiltrates, and HRCT often shows patchy ground glass or fine nodules. PFTs can be normal or show a mixed obstructive/restrictive pattern. Diagnosis is made by biopsy. Treatment usually involves removal of the offending agent-in this case, likely cobalt dust from the dance studio floor-and unlike the treatment of hypersensitivity pneumonitis rarely includes steroids.

**AN UNUSUAL CASE OF ACUTE BACK PAIN.** J.O. Gonzalez[1]; [1]Hospital of the University of Pennsylvania, Philadelphia, PA *(Tracking ID #51309)*

LEARNING OBJECTIVES: 1. Recognize and diagnose Paget's disease in adults. 2. Outline the management of Paget's disease in adults.
CASE INFORMATION: A 71-year-old man presented with a two-day history of right flank and lumbar pain. The pain was acute in onset and awoke him from sleep. He stated it was sharp in quality and radiated from his lower lumbar spine region to the right flank. The pain was worsened with ambulation and lessened with rest but was usually constant in nature limiting his ability to walk. He denied any such previous episodes, fevers, chills, incontinence, and weakness. Past medical history was significant for hypertension, diabetes, hypercholesterolemia, chronic renal insufficiency and right knee arthritis. Examination revealed a slightly hypertensive obese man with no lymphadenopathy. No abdominal masses or hepatosplenomegaly was noted. Left hip flexion was rated 3/5 secondary to pain. Pain was not elicited in the lumbar or flank regions with palpation or movement. Baseline labs were normal except for a creatinine of 1.7, hemoglobin of 12.4 and an alkaline phosphatase level of 202. A lumbar spine xray was obtained which showed diffuse sclerosis of L1, L3, and T12 again noted on CT interpreted as worrisome for blastic metastatic disease. A chest xray, abdominal and pelvic CT, colonoscopy, spep/upep, and psa were all negative. A bone scan was obtained which revealed multiple areas of abnormal uptake in the right hemipelvis, right humerus, skull and T12, L1, and L3 representing polyostotic Paget's disease.
DISCUSSION: Paget's disease is characterized by excessive bone resorption followed by excessive bone formation resulting in architecturally unsound bone. The most likely bones to be involved are those of the pelvis, vertebrae, skull, femur and tibia. The prevalent signs and symptoms include bone pain and skeletal deformity. When bone pain occurs, its onset is frequently late in the disease process and is usually unrelated to physical activity. A radionuclide bone scan is the most efficient means of detecting Paget's disease in the skeleton. Biochemical markers of bone formation, such as serum alkaline phosphatase, and bone resorption, including urinary excretion of hydroxyproline and N-telopeptide, are increased in individuals with active disease. The main methods for treating Paget's disease include: pharmacological therapy using either bisphosphonates or calcitonins; pain management using analgesics; and surgery. Paget's disease can usually be suppressed with one or two 60 mg infusions of pamidronate. Calcitonin given in 50 to 100 units daily by subcutaneous injection is another treatment option. Oral calcium and vitamin D supplementation is recommended to lessen hypocalcemia. Pain directly attributable to Paget's disease is generally relieved through anti-osteoclast treatment as described above. Some pain may be the result of bone deformity or arthritic or neurological complications. In this case, acetaminophen, nonsteroidal anti-inflammatory drugs, or cox-2 inhibitors may be helpful for the management of pain. Surgery is rarely needed but may be required when pharmacologic therapy is not successful and is warranted in fixing a complete fracture through a known pagetic lesion.

**A CASE OF BILATERAL LOWER EXTREMITY SWELLING IN A PATIENT WITH NEPHROTIC RANGE PROTEINURIA.** J.O. Gonzalez[1]; [1]Hospital of the University of Pennsylvania, Philadelphia, PA *(Tracking ID #51995)*

LEARNING OBJECTIVES: 1. Recognize infero-vena-caval thrombosis. 2. Evaluate the differential diagnosis of infero-vena-caval thrombosis.
CASE INFORMATION: A 61-year-old male presented with increasing swelling of both his legs over the last 4 weeks. Past medical history was significant for diabetes, hypertension, hypercholesterolemia, asthma, and psoriatic arthritis. He initially presented to his generalist where a work-up was significant for nephrotic range proteinuria of 7.5 gms. During the 2 weeks prior to admission the patient's edema progressed and now involved his scrotum and penis and significantly limited his ability to ambulate. Examination was significant for an obese gentleman who was mildly distended with multiple psoriatic lesions on his trunk and extremities. No abdominal masses or hepatosplenomegaly was noted. Studies to evaluate the proteinuria including a hepatitis panel, HIV, ANA, anti-dsDNA, and RPR were all negative. The patient's creatinine was noted to have increased from 1.8 one month prior to 2.4. A renal ultrasound was then obtained which revealed a mass anterior to the liver (7x14x13cm) along with peri-aortic lymphadenopathy (6x10x12cm) and multiple hypoechoic lytic lesions within the spleen. Follow-up MRI revealed extensive lymphadenopathy with concurrent infero-vena-caval (IVC) compression. An ultrasound guided biopsy specimen of the abdominal mass was obtained which revealed large B cell lymphoma. A chemotherapeutic regimen of Rituxan/CHOP was initiated with improvement of his lower extremity swelling along with resolution of his nephrotic range proteinuria.
DISCUSSION: Bilateral lower extremity swelling although having a limited differential can confound even the most tactile clinician. In this patient the initial laboratory finding of nephrotic range proteinuria was only a harbinger of the real disease process, IVC thrombosis. The causes of IVC thrombosis include: malignancy, external compression, trauma, hypercoagulable states, and iatrogenic thrombosis. Patients with IVC thrombosis can present with a wide spectrum of signs and symptoms. Up to 60% of patients do not present with bilateral lower extremity swelling. And 20% of patients have angiographically proven pulmonary embolism. Although numerous malignancies are associated with IVC thrombosis, renal cell carcinoma is the most familiar. Extrinsic compression from such sources as hepatic abscesses, aortic aneurysms, pancreatic pseudocysts, polycystic kidneys, lymphadenopathy and metastatic carcinoma are other causes. Direct trauma to the IVC such as from motor vehicle accidents can lead to Virchow's triad of stasis, injury and hypercoagulable state and thrombosis. Hypercoagulable states seen in nephrotic syndrome, antithrombin III, protein C and S deficiency, and anti-phospholipid antibodies have also been associated with this entity. Finally, iatrogenic causes include femoral vein catheters, pacemaker wires, IVC filters and oral contraceptives.

**POST-PARTUM LACTATION AND HYPERTENSION.** J.P. Grimes[1], J. Scalia[2]; [1]University of Medicine and Dentistry of New Jersey-Robert Wood Johnson Medical School, New Brunswick, NJ; [2]Whitehouse Station, NJ *(Tracking ID #52026)*

LEARNING OBJECTIVES: 1. Manage hypertension in lactating women. 2. Recognize the role of lactation in medical management decisions.

CASE INFORMATION: A 33 year-old Gravida 1 Para 1 obese female presents one-week status post Cesarean-section delivery of a healthy newborn. Her pregnancy was complicated by hypertension and retinal edema. Upon hospital discharge labetalol 500mg bid was initiated with instructions for ophthalmology and primary care follow-up. At the initial visit, she indicated symptoms of daily persistent headaches and visual disturbance. The physical exam revealed normal vital signs, papilledema, mid-systolic click with 2/6 soft blowing ejection murmur, pitting lower extremity edema, and proteinuria. The labetalol was discontinued secondary to complaints of headache and she was started on clonidine 0.1mg bid. A 48-hour follow up visit revealed normal blood pressure with an improvement in headache and visual disturbance. However, she was breastfeeding and expressed concern regarding the use of clonidine. It was replaced with metoprolol 50mg bid. A follow-up call five days later revealed her ambulatory blood pressure was well controlled. She was instructed to stop metoprolol and continue to monitor. Follow up exams in one and three weeks revealed normal blood pressures, resolution of all abnormal physical findings and a normal serology with the exception of elevated cholesterol
DISCUSSION: Breastfeeding should be supported by medical providers in conjunction with treatment of disease states. Too often lactation is considered a non-essential function that should be terminated when initiating pharmaceutical treatment. In truth, little is known regarding the effects of most medications on the nursing child, including anti-hypertensives. It is noteworthy that nearly all these agents are excreted to some extent in breast milk. The differences that exist in the lipid solubility and ionization of these agents determine, to a large part, their concentration in breast milk. Generally, if drugs are tolerated in pregnancy they are considered safe during lactation. Furthermore, if pre-pregnancy blood pressure were normal or unknown it is reasonable to stop oral agents and closely observe blood pressure at one-to-two week intervals. When deciding on antihypertensive treatment options for lactating women the authors discourage using the Physician's Desk Reference. Two good sources are Medication and Mother's Milk and the Report of the National High Blood Pressure Education Program Working Group on High Blood Pressure in Pregnancy. Strategies to minimize the drug effect on the nursing child should include the following (1) Use shorter acting drugs; long-acting agents require detoxification and could put infants at risk (2) Schedule medication after a feed. (3) Choose drugs that concentrate less in milk. (4) Monitor infant for possible side effects (i.e. hypoglycemia with beta blockade use). With close supervision of breastfed infants of mothers receiving anti-hypertension agents, breastfeeding can be encourage and supported.

**LOOKING FOR THE NEEDLE IN A HAYSTACK.** L.L. Grumbles[1]; [1]University of Texas Medical Branch, Galveston, TX *(Tracking ID #51537)*

LEARNING OBJECTIVES: 1. Review medical record with a critical eye. 2. Diagnose a restrictive ventilatory defect by using the appropriate components of the pulmonary function tests. 3. Identify a neuromuscular etiology of a restrictive ventilatory defect by using pulmonary function tests, arterial blood gases and plain film chest radiography.
CASE INFORMATION: A 86 year old woman presented with progressive weakness over several months associated with ensuing chronic respiratory failure. She had a 100+ pack history of tobacco use. The case involved a long history of misdiagnosis of the etiology of an associated chronic respiratory failure. All diagnostic testing to confirm the etiology were done early in course of work up. But they were misinterpreted and erroneously documented in the medical record.
DISCUSSION: Erroneous spirographic interpretation occurs frequently in general medical practice due to the assumption that a history of smoking precipitates symptom producing chronic obstructive pulmonary disease. All bedside spirometry interpreted as a combined obstructive and "apparent" restrictive ventilatory defect pattern must be confirmed by lung volume studies to document the presence and severity of a restrictive defect. Significant pure restrictive ventilatory defects due to a neuromuscular etiology can frequently be recognised by the presence of chronic hypercapnia in association with a normal chest radiograph. Pure ventilatory defects due to a parenchymal disease will only have associated chronic hypercapnia if the chest radiograph reveals extensive parenchymal disease involvement.

**FEVER OF UNKNOWN ORIGIN-THE CASE OF CAECAL CARCINOMA.** S. Habib[1], R. Hess[1], J. Hefner[1]; [1]University of Pittsburgh, Pittsburgh, PA *(Tracking ID #51751)*

LEARNING OBJECTIVES: 1. Recognize that colon cancer may present as FUO without systemic symptoms.
CASE INFORMATION: A 77 yo man was admitted to evaluate a low-grade fever of 6 weeks duration. Associated symptoms included headaches, dizziness, anorexia and weight loss. He denied travel abroad and tuberculosis exposure. He worked as manager and was retired for 10 years. Past medical history includes prostate cancer treated with bilateral orchidectomy and a DVT (both in 1993) for which he takes coumadin. Physical exam revealed temperature of 37.5 C, pulse 88/min regular, BP 177/70, pallor and wasting. Temporal arteries were palpable but non-tender. There were no signs of endocarditis, ear infection or dental abscess. Lymph nodes, liver and spleen were not palpable. The rest of the exam was unremarkable. Initial labs: Hb 10.6 gm/dl, MCV 78 fl, ESR 108 mm/hr, Total Protein 64 g/l, Albumin 25 g/l and Globulin 39 g/l. Other blood tests including LFTs, BUN/Cr, electrolytes, B12, folate, ferritin, calcium, SPEP and thyroid functions were normal. Chest X-ray, head CT and temporal artery biopsy were normal. Blood cultures grew Morganella morgagni. Transthorasic echocardiogram was normal. CT abdomen showed multiple hypodense lesions in both lobes of liver, without associated lymphadenopathy. Diagnosis of multiple hepatic abscesses was made and he was treated with 2 weeks of ciprofloxacin. After treatment, he remained febrile and continued to lose weight. Amoebic and brucella serology and HBsAg were negative. The patient died 7 weeks after presentation. Autopsy revealed ceacal carcinoma with multiple hepatic and pulmonary metastasis. Histopathology confirmed adenocarcinoma.
DISCUSSION: Fever of unknown origin (FUO) was defined 35 years ago by Petersdorf and Beeson as 1) temperatures higher than 38.3 C on several occasions, 2) duration of fever of >3 weeks, and 3) failure to reach a diagnosis despite of 1 week of in-patient investigation. While this classification has stood for more than 30 years, Durack and Street have proposed a new system for classification of FUO: 1) classic FUO, 2) nosocomial FUO, 3) neutropenic FUO, 4) FUO associated with HIV. Causes of FUO are categorized into 1) infections (20 – 30%), 2) collegen vascular diseases (16 – 24%), 3) Neoplasms (7 – 20%), 4) miscellaneous (infiltrative and metabolic diseases) (8 – 21%), 5) undiagnosed (7 – 30%). In a series of 199 patients studied by Knockeart between 1980 and 1989, the percentage of FUO due to malignancy was reduced; a decrease attributed to improvement in diagnostic technologies. Among neoplasms, Hodgkin's disease, Non Hodgkin's lymphoma, Leukemia, Renal cell carcinoma and Hepatoma are common causes of FUO, while Atrial myxomas, Sarcoma, Pancreatic, Renal angiomyolipoma and colonic carcinomas are rare. Ten cases of colon cancer presenting as FUO have been reported. The cause of fever in colon carcinoma remains unclear. Tumor necrosis factor, interleukin-1, and bacteremia due to rare organism have been implicated in the pathogenesis.

**STREPTOCOCCAL TOXIC SHOCK SYNDROME AFTER ACUPUNCTURE.** S. Han[1], D. Yick[2], S. Wali[1]; [1]UCLA San Fernando Valley Program, Sepulveda, CA; [2]Olive View UCLA Medical Center, Sylmar, CA *(Tracking ID #51684)*

LEARNING OBJECTIVES: 1) Recognize potential serious complications of complementary and alternative therapies. 2) Recognize early on the possible severity of soft tissue infections 3) Review the diagnostic challenges and treatment of Streptococcal Toxic Shock Syndrome.
CASE INFORMATION: Patient is a 35 year old male, with a history of HIV. He presents with a one day history of nausea, vomiting, diarrhea, high fevers, and severe total body pain. He denies headaches, neck stiffness. He denies use of intravenous drugs. He denies chest pains, shortness of breath, or cough. He denies history of recent travel, insect bites, or animal exposures. He has a past medical history significant for diabetes mellitus. Upon presentation, he was complaining of excruciating pain all over his body. His rectal temperature was 38.2, blood pressure 83/50, heart rate 108, respiratory rate 14. He was noted to have red, streaky,tender patches over his hands, shoulders, elbows, and legs, which appeared to enlarge over a period of hours. No skin breakdown was noted. His lower extremties revealed 1+ non-pitting edema bilaterally, but no crepitus. His physical exam was otherwise unremarkable. White blood cell count was 11.0. His serum bicarbonate level was 17, creatinine 1.9, and glucose 124. Creatinine kinase was 159. He was started empirically on Clindamycin and Penicillin for possible for Streptococcal infection. His blood cultures later were found to be positive for Group A beta Hemolytic Streptococcus and he was diagnosed with Streptococcal Toxic Shock Syndrome. Later during his admission, the patient revealed that he had received acupuncture treatment earlier during the day his symptoms started. The patient improved with medical management, and was discharged without permanent sequelae.
DISCUSSION: In many cases of Group A streptococcal infections, young healthy individuals present with the clinical entity known as Toxic Shock Syndrome; hypotension, multi-organ failure, and a severe soft tissue infection. This infection often progresses quite rapidly to necrotizing fasciitis and death, despite early aggressive intervention. A high index of suspicion must be maintained when a patient presents with a seemingly innocuous skin infection, and have excruciating pain out of proportion to their clinical findings. Early use of appropriate antibiotics appeared to have made a difference in our patient. Penicillin is still the drug of choice for these infections, although clindamycin also may have some theoretical advantages over other antibiotics. Acupuncture as a source of severe soft tissue infections has not been explored in much detail. In our case however, this was the obvious source of his infection, and he was counseled against further use of acupuncture.

**BERIBERI HEART DISEASE IN A YOUNG FEMALE WITH AN UNUSUAL DIET.** B.P. Hannah[1], V. Martin[1]; [1]University of Cincinnati, Cincinnati, OH *(Tracking ID #51055)*

LEARNING OBJECTIVES: 1. Recognize beriberi heart disease as an unusual cause of heart failure. 2. Diagnose beriberi heart disease from its clinical presentation. 3. Support the diagnosis with additional testing and response to therapy.
CASE INFORMATION: A 25-year old female presented complaining of shortness of breath, bilateral lower extremity swelling, and increasing abdominal girth over four weeks. She reported that for two years her diet consisted almost solely of candy and carbonated beverages. Physical examination revealed an edentulous female with a III/VI harsh systolic murmur loudest at the left sternal border and radiating throughout the precordium. She had 3+ pitting edema to the abdomen. Laboratories were notable for hemoglobin 7.7 g/dL, platelets 215,000, ESR 3 mm/hr, albumin 3.4 g/dL, and TSH 5.6 uIU/ml. EKG revealed normal sinus rhythm with T wave inversions in the inferior and anterior leads. CXR demonstrated an enlarged cardiac silhouette and a left-sided pleural effusion. Echocardiogram was unremarkable except for a TR jet of 2.8 m/sec2 indicating elevated right-sided pressures. Blood cultures were negative. Cardiac catheterization showed normal coronary arteries, PCWP 26, and PA pressures 58/28. Cardiac output was calculated to be 7.84 L/min and cardiac index was 5.22 L/min/m2. In the setting of high output heart failure and malnutrition, beriberi heart disease was proposed. She was discharged home on oral thiamine. The patient was seen four weeks after discharge and had no lower extremity edema and return of normal appetite.
DISCUSSION: Beriberi heart disease is a well-known cause of high output heart failure, however, it is rarely encountered. Seven diagnostic criteria for beriberi heart disease have been proposed. These criteria include three or more months of a thiamine deficient diet, enlarged heart with normal sinus rhythm, dependent edema, signs of neuritis or pellagra, minor EKG changes such as nonspecific ST-T wave changes, no other identifiable cause for heart disease, and response to thiamine therapy or autopsy evidence. Our patient met five of the above clinical criteria. Additional laboratory testing is timely and rarely beneficial. Recognition of this unusual cause of heart failure is important as the condition may rapidly progress with irreversible myocardial damage. If the clinical syndrome is recognized early, it is easily treatable with vitamin supplementation.

**REITER'S SYNDROME: AN ARTHROPATHY WHERE SYSTEMIC STEROIDS ARE NOT THE MAINSTAY OF TREATMENT.** S. Harigovind[1], I. Vassileva[1]; [1]New Hanover Regional Medical Center, Wilmington, NC *(Tracking ID #51368)*

LEARNING OBJECTIVES: 1. Identify typical features of Reiter's syndrome and recognize extra-articular manifestations. 2. Recognize that first line treatment of Reiter's syndrome is different from most other forms of arthritis.

CASE INFORMATION: 42 year old white male presented with conjunctivitis, photophobia (suggestive of uveitis), asymmetric oligoarthritis, low back pain, enthesopathy causing sausage digits, circinate balanitis and keratoderma blennorrhagicum of feet, one week after treatment of symptomatic but culture- negative urethritis. Labs ESR-134, CRP-positive, WBC count-18,700, HIV-NR, ANA/RF-negative, Joint fluid analysis - WBC 11660 with 93% neutrophils, RBC 680, Gram stain negative, Culture no growth, Crystal exam negative, EKG-wnl, MRI sacroiliac joints-negative, HLA B27-POSITIVE. Reiter,s syndrome was diagnosed due the above stated features. His arthritic symptoms were only transiently relieved by systemic steroids. Maximal relief was obtained with Non-Steroidal Anti-Inflammatory Drugs (NSAIDS), followed by Sulfasalazine (stopped due to elevated liver enzymes) and then Methotrexate, along with Doxycycline for 1 month (given as the patient had a history of unprotected intercourse with an infected woman). As adjuncts to the above treatment the patient had intra-articular steroid injections, steroid eye drops, Physical and Occupational therapy (PT/OT). The patient moved and discontinued treatment due to financial reasons 4 months after he presented. By report of his ex-wife his vision has worsened and he has developed deformity of his lower extremities.
DISCUSSION: The triad of non-gonococcal urethritis, clinical uveitis, and arthritis in a HLAB27 positive patient is suggestive of Reiters syndrome. Other features of Reiters include conjunctivitis, enthesopathy, inflammatory back pain, circinate balanitis, keratoderma blenorrhagicum, aortic regurgitation and prolongation of the PR interval on EKG. Radiologic findings include sacroiliitis usually unilateral, erosions at the enthesis of the hindfoot, periosteal spurs at the ischial/tibial tuberosities, fibula, and trochanter and asymmetric syndesmophytes. Poor prognosis in Reiter's is indicated by HLA B27 positivity, male gender, extraarticular lesions and postvenereal disease all of which the patient had. Optimal management is NSAIDS for acute arthritis, Sulfasalazine and Methotrexate for chronic arthritis, Doxycycline for urethritis, intra-articular steroid injections, and PT/OT. Systemic steroids may help but are not the first line of treatment.

**NECROTIZING CELLULITIS FROM A MONOMICROBIAL GRAM NEGATIVE INFECTION.** C. Haroldson[1]; [1]Hennepin County Medical Center, Minneapolis, MN *(Tracking ID #52152)*

LEARNING OBJECTIVES: 1) Recognize an unusual etiology of fulminant necrotizing cellulitis from a pure gram negative infection. 2) Recognize a variation in presentation of necrotizing Serratia marcescens cellulitis. 3) Appreciate the complications of gram negative necrotizing cellulitis.
CASE INFORMATION: A 44 year old man with severe ischemic cardiomyopathy, diabetes mellitus, chronic renal insufficiency, obesity and alcoholism presents with dyspnea, progressive anasarca, and acute renal failure. On admission, the patient had subtle findings on his left leg including mild erythema and warmth distally. He was treated with cefazolin for presumed cellulitis. Twelve hours after admission the patient was experiencing pain out of proportion to his physical findings. Within thrity six hours of admission, dusky purple areas with blistering and bullae developed and the erythema spead proximally. Initial blood culture was positive for Serratia marcescens, and imipenem and ciprofloxacin were initiated. Aggressive debridement of the left thigh revealed necrotic skin and subcutaneous tissue with a healthy underlying fascia. Tissue cultures were positive only for Serratia marcescens. One week after admission, the hospital course was complicated by necrotizing fasciitis requiring fasciectomy. Again, tissue culture revealed only Serratia marcescens.
DISCUSSION: Subcutaneous soft-tissue infections occur principally in patients who have had surgery, in immunocompromised hosts, and those with predisposing conditions, such as diabetes mellitus. Necrotizing soft-tissue infections include a variety of organisms and are characterized by rapidly progressing inflammation and necrosis of the involved tissue. Necrotizing infections are life-threatening, often follow a fulminant clinical course, and are associated with high morbidity and mortality. The underlying cause is usually group A beta-hemolytic streptococci or a polymicrobial infection. Monomicrobial gram negative necrotizing cellulitis is rare, however, with only a few prior case reports. Our patient presented with a pure Serratia marcescens necrotizing cellulitis and illustrates that this organism should be considered as a potential monomicrobial pathogen in compromised patients. In addition, Serratia marcescens may present with subtle findings and rapidly progress to necrotizing cellulitis and fasciitis.

**EOS, EOS.....OH!** T. Hascall[1], E.F. Yee[1], A.G. Gomez[1]; [1]UCLA/San Fernando Valley Program, Sepulveda, CA *(Tracking ID #51322)*

LEARNING OBJECTIVES: 1. Review the differential diagnosis for eosinophilia. 2. Become familiar with unique medical problems found in recent immigrants from Central America.
CASE INFORMATION: A 63 y/o Latino male presented with a 3 month history of night sweats, fevers, chills, fatigue, non-bloody diarrhea, and an occasional non-productive cough since immigrating from El Salvador. He also had a 90 pound weight loss over 6 months and denied any tuberculosis contacts or history. His medical history was negative except for unspecified renal problems and he was on no medications. He denied any history of smoking tobacco or using IV drugs but admitted to heavy drinking (10 to 12 beers per day) for 20 years. He noted a history of unsafe sexual practices with multiple heterosexual partners, but was currently married. On exam he was frail. BP was 98/64 T37.2, P 81, R16. His examination was notable for marked temporal wasting, a firm, movable right subpraclavicular lymph node, and epigastric tenderness. His lung, cardiac, and neurologic exams were unremarkable. A CXR revealed no abnormalities and the patient was diagnosed with possible upper respiratory infection and sent home on amoxicillin. A subsequent check of the laboratory exam revealed a white count of 12.8 with 20% eosinophils, Hb 7, HCT 23, BUN 26, Cr 2.7. The patient was called back and admitted for evaluation. A subsequent CBC confirmed the anemia and leukocytosis with eosinophilia. The patient received a blood tranfusion with improvement of his fatigue and stabilization of his blood counts. A CT scan revealed mesenteric and inguinal adenopathy. PSA, barium enema, and induced sputum for AFB organisms were all negative. His PPD was positive. A renal U/S revealed slightly small kidneys consistent with a chronic process. Lymph node biopsy showed only a reactive process. HIV was positive and stool O&P revealed Strongyloides stercoralis. The patient was treated with thiobendazole and discharged. On follow up he had gained 10 pounds and felt much stronger. He opted to return to El Salvador for further treatment.
DISCUSSION: Eosinophilia is the presence of more than 500 eosinophils/ml of blood. The most commonly cause is parasitic infection, but other causes include allergic drug reactions, allegic rhinitis and asthma; neoplastic disorders such as leukemia and lymphoma, collagen vascular disease, and infectious causes such as parasitic infections, fungal infections. In our case, the stool yielded the needed diagnosis. Strongyloides is found throughout Central America, most tropical and subtropical regions, Appalacia and southeastern states among temperate regions. Parasitic infections, TB, and HIV are not uncommon in recent Central American immigrants. Our patient had all of these conditions. Awareness of these issues help in caring for this challenging patient population from a medical and Public Health point of view.

**A RARE CAUSE OF ACUTE FLANK PAIN.** S.N. Hastings[1], B.K. Roberts[1]; [1]Stanford University, Stanford, CA *(Tracking ID #52404)*

LEARNING OBJECTIVES: 1. Recognize renal infarction as an unusual cause of acute flank pain. 2. Recognize contrast enhanced CT scan as the imaging modality of choice for diagnosis. 3. Choose further diagnostic studies based on pre-test probability of thromboembolic disease and renal artery dissection as potential etiologies.
CASE INFORMATION: A 47-year old previously healthy male presented with acute onset of dull, right flank pain radiating to the right lower quadrant associated with nausea and vomiting. The patient's only medication was intermittent Ibuprofen and he denied any intravenous drug use. On examination, the patient was visibly uncomfortable and hypertensive to 160/80 with right costovertebral angle tenderness. Laboratory studies revealed a WBC count of 14,000, creatinine 0.9 mg/dL, LDH 365, and urinalysis with ketones and 1 – 3 rbc's. Contrast-enhanced CT scan revealed infarction in the inferior pole of the right kidney. The patient was started on anticoagulation, but his pain intensified on the right and he developed new left flank pain. Repeat CT scan revealed extension of the right infarct as well as infarction of the inferior pole of the left kidney. Angiography revealed bilateral segmental renal artery dissection. A stent was placed across the dissection flap and an associated aneurysm was coiled. No evidence of underlying vessel wall abnormalities or autoimmune disease was discovered. The patient has been maintained on anticoagulation and his creatinine remains stable at 1.2 mg/dL.
DISCUSSION: Acute flank pain first raises clinical suspicion for urolithiasis, however renal infarction is an increasingly described and potentially underdiagnosed condition with a similar presentation. Because of its rarity, no guidelines currently exist for diagnosis and management, therefore high clinical suspicion remains paramount. Helical non-contrast CT has been shown to be superior to ultrasound and IVP in the diagnosis of kidney stones. The sensitivity of helical non-contrast CT in diagnosing renal infarction is not known, but contrast enhanced CT has documented many cases missed by non-contrast studies and is widely regarded as the diagnostic test of choice. When increased suspicion for renal infarction or other intra-abdominal pathology is present, contrast enhanced CT should be considered as an initial imaging study.
Once renal infarction has been established, further diagnostic studies should be chosen to reflect the pre-test probability of underlying disease. Patients at high risk for thromboembolism merit early anticoagulation, aggressive search for an embolic source, and potentially thrombolysis and/or embolectomy. In middle-aged otherwise healthy males such as our patient, early consideration must be given to possible renal artery dissection. Early anticoagulation and angiography for definitive diagnosis and possible intervention are cornerstones of management.

**THE CASE OF THE LUMPY LIVER- EXTRA-RENAL MANIFESTATIONS OF AUTOSOMAL DOMINANT POLYCYSTIC KIDNEY DISEASE.** R. Hess[1], J. Hefner[1], M.A. Mcneil[1]; [1]University of Pittsburgh, Pittsburgh, PA *(Tracking ID #51574)*

LEARNING OBJECTIVES: 1. Recognize the extra-renal manifestations of polycystic kidney disease. 2. Manage the complications of liver cysts.
CASE INFORMATION: A 42-year old woman presented to the office with recurrent complaints of abdominal pain. Previous work up revealed ovarian cysts and an enlarged liver of unclear etiology. She now reports severe RLQ pain that is worse with walking and improves when sitting. The pain is sharp in nature and non-radiating. It is not associated with meals or defication. Family history is remarkable for a mother who had end stage renal disease of unknown etiology. Past medical history is remarkable for 3 live births. She has previously used oral contraceptive pills and currently takes no medication. She has an intrauterine device in place for birth control. Physical exam revealed a nodular liver palpable into the pelvis. There was no ascites present. No abdominal masses were palpated. CT scan of the abdomen and pelvis revealed multiple cysts in the liver parenchyma and bilateral kidneys. There were no ovarian cysts present. Laboratory studies, including urinalysis, liver function tests and creatinine were normal. Pain was managed with codeine and the patient did well. Over the course of the next year, she developed headaches and a MRI was obtained to rule-out aneurysm. It was normal. Her abdominal pain worsened and she was referred to surgery.
DISCUSSION: Autosomal Dominant Polycystic Kidney Disease (ADPKD) is a heterogeneous condition that ranges in severity from benign to life shortening. Extra-renal manifestations include cerebral aneurysms (4 – 10% of patients), hepatic cysts (10 – 40% of patients), and abdominal wall hernias (up to 45% of patients with ADPKD on dialysis). Liver cysts form later in life than kidney cyst and occur more frequently in women. They increase in size and quantity during pregnancy and when women are taking hormonal therapy. Cysts arise from both biliary microehamartomas and peribiliary gland. Liver function is usually preserved, while pain due to capsular stretching, cyst infection and cyst rupture is more frequent. Cholangiocarcinomas may arise from the polycystic liver. Some patients may experience portal hypertension, inferior vena cava compression, bile duct compression, and Budd-Chiari syndrome secondary to mechanical compression of the hepatic vein by the enlarged liver. Treatment is typically supportive; pain is self-limited and can be treated with medication. Refractory symptoms can be managed with cyst drainage, cyst fenestration (exposure of the cyst cavity to drain into the peritoneum), hepatic resection or even transplantation. This patient was recommended for laparoscopic cyst fenestration and received good pain relief.

**ABDOMINAL PAIN THAT WOULD NOT GO AWAY.** T. Higa[1]; [1]UCLA/San Fernando Valley Internal Medicine Program, Sepulveda, CA *(Tracking ID #52416)*

LEARNING OBJECTIVES: 1) Recognize that midepigastric/right upper quadrant collicky pain may have etiologies other than the gall bladder, especially in those that travel outside the US. 2) More procedures does not mean more answers.

CASE INFORMATION: A 67 y/o female with a past medical history significant for hypertension and GERD was admitted for abdominal pain for 2 days duration. Pain was collicky in nature, located in mid epigastric area radiating to the right upper quadrant with associated nausea and vomiting especially after eating. The patient had undergone cholycystectomy one month earlier after multiple ER visits for recurrent "gallbladder" pain secondary to cholilithiasis seen on ultrasound. The pain resolved for a short time after surgery, however returned. One week prior to the current admission, she underwent an upper endoscopy and was diagnosed with a possible papillary stenosis of the sphincter of Oddi and a sphincterotomy was done. The abdominal pain however continued despite the procedure. On this admission, the patient admitted to bouts of ongoing diarrhea since the onset of abdominal pain and stool studies were sent. A throrough history was obtained. She was asked specifically about her travel history and medication history including herbs. She admitted to traveling to Mexico before the onset of symptoms and did not take any herbal remedies except mint leaves. During the hospitalization, her white count rose from 13.7 to 40.3 with eosinophil count rising from 36% to 77%. Stool studies revealed a large worm burden of Strongyloides larvae. The patient was treated for the infection and all symptoms resolved completely over the next few days.

DISCUSSION: This case demonstrates that stones and RUQ collicky pain does not always equal gallbladder disease. It also demonstrates that doing multiple procedures does not necessarily determine the etiology or help cure the patient. In some cases, it may in fact put a patient at greater risk. Despite invasive procedures such as cholycystectomy and sphincterotomy, this patient continued to have abdominal pain. It was not until a wider differential and more thorough history was obtained that this patient received the appropriate treatment and finally the resolution of her symptoms.

**LARGE B-CELL LYMPHOMA PRESENTING AS LARGE CUTANEOUS OCCIPITAL MASS.** B.E. Hippen[1], L.B. Lu[2]; [1]Baylor College of Medicine, Houston, TX; [2]Houston Veterans Affairs Medical Center, Houston, TX *(Tracking ID #52356)*

LEARNING OBJECTIVES: 1) Review the differential diagnosis of an occipital scalp mass, 2) Review an unusual presentation of B-cell lymphoma.

CASE INFORMATION: A 78 year-old white female presented with a six-month history of an enlarging occipital mass. Initially "the size of a plum," a computerized tomography (CT) scan of the head suggested a scalp hematoma. Several months later the patient reported a rapid enlargement of the mass to the size of a grapefruit with bloody drainage. Other than the mechanical discomfort, she denied fever, chills, night sweats, weight loss, pain or pruritus. Exam revealed a burgundy, soft, succulent, fixed mass originating from her occiput. Serosanguinous fluid extruded from multiple areas. No lymphadenopathy or hepatosplenomegaly was noted. A CT scan revealed a 9.5 cm x 11 cm heterogenous mass in the subcutaneous tissue without involvement of the paraspinous musculature. Biopsy demonstrated necrosis with lymphocytic infiltration and flow cytometry confirmed a large B-cell lymphoma. An HIV test and a whole-body CT were negative. Patient underwent chemotherapy.

DISCUSSION: Discussion: The differential diagnosis of this scalp mass includes benign growth processes: lipoma, sebaceous cyst, keloid, and melanocytic nevus; mechanical displacement: scalp hematoma; infections: atypical mycobacteria, esp. M. leprae; sarcoidosis; and malignancies: squamous cell carcinoma, basal cell carcinoma, melanoma, T-or B-cell lymphoma, and systemic metastases. Cutaneous B-cell lymphoma usually presents as a dermal tumor with a smooth surface, red to plum in color, may or may not be fixed and is usually not painful. Evaluation should focus on identifying constitutional "B" symptoms (fever, night sweats, and weight loss), and evidence of extracutaneous disease on exam. In general, cutaneous B-cell lymphoma has a much better prognosis than systemic disease.

**A CASE OF OSTEOMALACIA DUE TO VITAMIN D DEFICIENCY IN AN ALCOHOLIC.** J.G. Hobelmann[1], D. Ebright[1]; [1]Union Memorial Hospital, Baltimore, MD *(Tracking ID #52158)*

LEARNING OBJECTIVES: 1) To recognize the presentation and radiological features of osteomalacia. 2) To manage osteomalacia secondary to vitamin D deficiency.

CASE INFORMATION: C.M. is a 70 year old Caucasian male with a past medical history of hypertension, chronic obstructive pulmonary disease (COPD), gastroesophageal reflux disease and anxiety disorder, who presented with a four day history of left leg pain radiating to the foot. The patient was unable to bear weight secondary to the pain. The patient rarely left his apartment. He drank a pint of alcohol daily, and reported a 30-pound weight loss over the prior few months. On physical examination, the patient appeared cachectic. His vital signs were normal. Significant findings included point tenderness over the lumbar spine. His left hip was tender to palpation, and he had limited range of motion of the entire left leg secondary to pain. There was no external rotation of the left leg. Blood chemistries were normal with the exception of a potassium of 3.3 meq/L, a magnesium of 1.5 mg/dL, and a calcium of 7.9 mg/dL. Serum albumin was 2.9 g/dL. Serum phosphorus and alkaline phosphatase levels were normal. A chest x-ray showed degenerative changes of the thoracic spine. Left hip films showed no evidence of fracture. Lumbar/sacral spine films showed an L1 compression fracture with diffuse demineralization. Due to the patient's recent weight loss and the compression fracture, there was concern for possible bony metastases. A bone scan revealed symmetric multifocal lesions of the spine, ribs, pelvis and extremities. Subsequent vitamin D levels revealed 25-hydroxycholecalciferol of <5 (8–38 ng/mL) and 1,25-dihydroxycholecalciferol of 19 (22–67 pg/mL). The patient was treated with subcutaneous vitamin D 50,000 IU daily for one week, then weekly for three months and then subsequently on a monthly basis. His leg pain completely resolved within a few days of therapy and he returned to his normal state of health.

DISCUSSION: Osteomalacia is a metabolic bone disease with multiple etiologies that results in abnormal bone demineralization. Vitamin D deficiency is rare in the United States due to the ample sources of environmental and dietary Vitamin D. The presentation is varied and may consist of vague bone pain, and multiple fractures or deformities of the lower limbs. Laboratory studies may show low calcium, low phosphorus, slightly elevated alkaline phosphatase, or may be completely normal. Radiographically, generalized osteopenia may be seen. Pseudofractures are pathognomonic of osteomalacia. A bone scan may show symmetric multifocal lesions commonly involving the ribs and the pelvis. Treatment of osteomalacia depends on the cause. Nutritional vitamin D deficiency is treated with high doses of ergocalciferol.

**MUTIFOCAL BULLOUS FIXED DRUG ERUPTION DUE TO ORLISTAT.** G. Honari[1], D. Casey[1], J. Taylor[1], C. Camisa[2]; [1]Cleveland Clinic Foundation, Cleveland, OH; [2]Cleveland Clinic Florida, Naples, FL *(Tracking ID #51893)*

LEARNING OBJECTIVES: 1. Identify fixed drug eruptions and treat appropriately. 2. Recognize the potential for systemic side effects due to orlistat.

CASE INFORMATION: A 46 year old African-American woman developed multiple painful lesions on her trunk, axillae, neck, and gluteal region approximately 4 weeks after initiation of orlistat treatment for obesity. She was on no other new medications at that time. The lesions were circular, hyperpigmented papules, approximately 2–6 cm in diameter. They developed bullous changes with central erosions, and the patient was seen by her doctor 6 days after stopping the orlistat. She was treated with cephalexin and referred to a dermatologist. Biopsies of the affected areas supported the diagnosis of a multifocal bullous fixed drug eruption. The lesions healed after discontinuation of the orlistat, leaving residual areas of hyperpigmentation. Four weeks later the patient inadvertantly rechallenged herself with orlistat, resulting in recurrence of the bullous lesions in the same distribution as before. She also developed lip and tongue swelling at that time, and was hospitalized overnight for treatment and observation of airway status. IV methylprednisolone and diphenhydramine were given as part of her initial management. She improved and was discharged home on prednisone and oral antihistamines. The skin lesions healed slowly with post inflammatory hyperpigmentation. The patient was well at one year follow-up and had no further exposure to orlistat.

DISCUSSION: Orlistat is a frequently prescribed drug for the treatment of obesity. It is a reversible lipase inhibitor and works locally in the gastrointestinal tract to reduce absorption of fat. Systemic side effects are thought to be rare, however this case demonstrates that there is the potential for serious adverse events. To our knowledge this is the first report implicating orlistat in a reaction of this kind. Clinicians prescribing orlistat should be aware that it may produce a fixed drug eruption and that early discontinuation of the drug is essential for treatment. Symptoms may be more severe upon reintroduction of the orlistat and early signs of airway compromise may need to be treated aggresively with steroids and antihistamines.

**MYCOPLASMA OR THE GREAT IMITATOR?** H. House[1], E.F. Yee[1], A.G. Gomez[1]; [1]UCLA/San Fernando Valley Program, Sepulveda, CA *(Tracking ID #52333)*

LEARNING OBJECTIVES: 1. Review causes of hemolytic anemia. 2. Recognize hemolytic anemia as an uncommon presentation of syphilis. 3. Review the epidemiology of syphilis.

CASE INFORMATION: A 71 yo African American male was found down with no loss of consciousness. He was heterosexual, did not smoke, drink alcohol, nor use IV drugs, and had otherwise been healthy. He lived in California most of his life and currently resided in a rescue mission. Admission vitals were T 98.2, BP 151/79, P110, RR 29. Lungs had bilateral crackles. Pupils reactive normally and TMs were clear. No rashes present. Oriented to place, year and month, he had a slight tremor but was otherwise normal neurologically. A CXR showed right middle lobe consolidation. PO2 was 51 on ABG, Hb 6, WBC 14.7, platelets 118, and retic count 15.9% The Hct was not obtainable due to cold agglutins. LDH was 2766, Bilirubin 7.5, Direct Bilirubin 1.9, AST 27, ALT 28, AP 64, with no blood or RBCs on urinalysis. During his hospitalization he was treated with broad spectrum antibiotics for pneumonia. Further studies showed Fe 177 TIBC 202, Ferritin 783, Folate 5.7, B12 221, direct coombs positive. SPEP showed polyclonal gammopathy; bone marrow biopsy showed hypercelluar marrow. RPR titer was 1:128, TPPA positive. Hepatitis B and C antibodies, ANA, RF, and HIV were all negative. Mycoplasma titers were ordered. The patient received steroids, blood transfusions, IV penicillin, and vitamin B12/folate. The pneumonia resolved but hemolytic anemia persisted. At the time of a planned lumbar puncture, the patient was more confused so a CT scan was obtained revealing a subdural hemotoma. He was transferred for neurosurgical evaluation/treatment.

DISCUSSION: Hemolytic anemia has numerous causes including infection with mycoplasm or syphilis. Although both these infections are possible causes in this case, we favor syphilis as the etiology. A lesser known sequelae of syphilis is the formation of the Donath-Landsteiner antibody that can precipitate cold induced hemolysis. Syphilis occurs more often in homosexuals, drug abusers, persons with other sexually transmitted diseases, nonwhites, and urban-dwelling populations. Regional outbreaks are increasingly common. This case illustrates the importance of recognizing unusual presentations of syphilis especially when caring for higher risk populations.

**RESPECT FOR FAMILY AND THE ETHIC OF CARE FOR A JEHOVAH'S WITNESS LACKING DECISION-MAKING CAPACITY.** M.T. Hughes[1]; [1]Johns Hopkins Medical Institutions, Baltimore, MD *(Tracking ID #52406)*

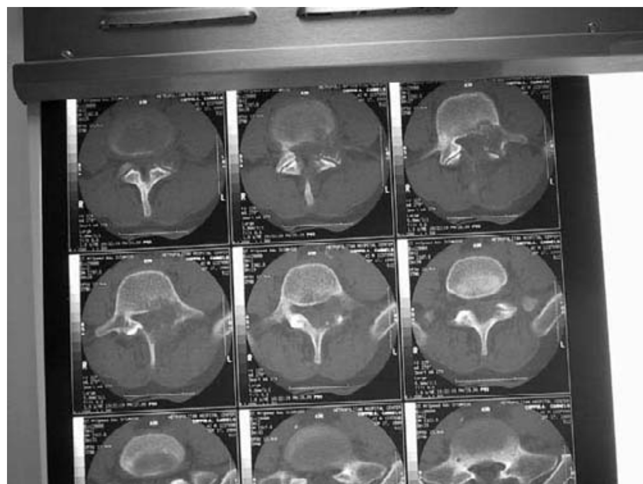
LEARNING OBJECTIVES: 1. Recognize the limitations of the autonomy model in principle-based Humanities for patient's lacking decision-making capacity. 2. Differentiate ethical issues relevant to never-competent versus previously-competent individuals requiring a surrogate decision-maker. 3. Explore decision-making within the framework of the ethic of care, in which respect for the integrity of the family becomes the guiding principle.

CASE INFORMATION: 55 year old male with mental retardation was transferred to a tertiary care facility for treatment of a large retroperitoneal hematoma sustained after a fall. The patient and his parents were Jehovah's Witnesses and declined blood transfusion to correct his resulting anemia. Transfer was made to explore alternatives to transfusion, including erythropoietin. On admission, the patient was tachycardic, tachypnic, hypoxic, and febrile. Hematocrit was 22.

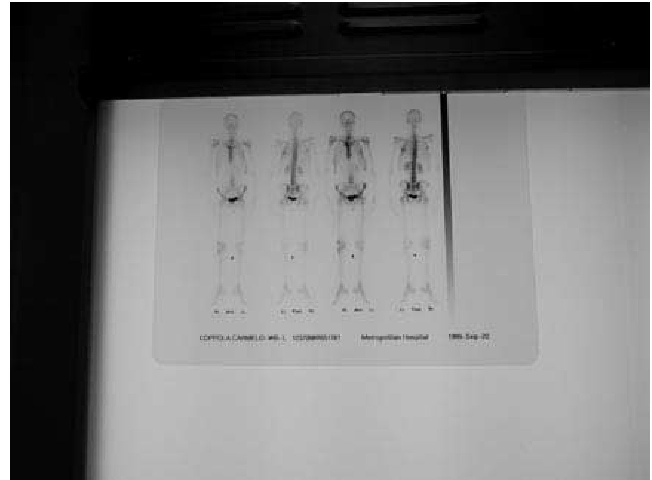
Further evaluation revealed the site of hematoma had developed into a multiloculated abscess. Surgical consultants recommended intraoperative drainage, which carried the risk of significant bleeding. Concern was raised that the patient would not survive the operation without blood transfusion. The patient had limited understanding of the situation but reiterated his refusal of blood products based on his religious beliefs. His parents concurred. They desired that their son live but not at the expense of his and their religious beliefs. The attending physician and medical team were faced with the ethical dilemma of whether or not to transfuse blood, with the added complexity of decision-making for a never-competent adult.
DISCUSSION: Medical Humanities in Western cultures holds the principle of respect for autonomy at the center of normative judgments. Decision-making capacity relies on the autonomy model, in that only those with capacity are able to make autonomous choices. The autonomy model can be invoked for once-competent individuals who have lost capacity, because surrogates can use a substituted judgment standard. Substituted judgment cannot be used for never-competent individuals, so surrogates must speak to the best interests of the individual. In the case of minors, case law has established that parents cannot invoke religious preferences when refusing life-sustaining treatment for their child. The Saikewicz case established that a guardian could refuse treatment for a never-competent adult without family if the burdens outweighed the benefits. This case challenged the medical team, because the patient was not completely analogous to a child and because the best interests that his parents spoke to were based on the family's well-established religious beliefs. The ethic of care can be used to help define a person in context, rather than in abstract. With such an understanding, the notion of respect supplants the notion of autonomy. Maintenance of relationships becomes paramount. In this case, respect for the intregrity of the family led the physician to accept the parents' wishes and view the patient's good as being beyond the medical benefit of transfusion.

**NEGATIVE BONE SCAN IN A PATIENT WITH BONE METASTASIS.** C. Ilinca-Pruzan[1]; [1]New York Medical College, Metropolitan Hospital Center, New York, NY *(Tracking ID #50627)*

LEARNING OBJECTIVES: Recognise the radiologic feature of bone metastasis. Maintain a high level of suspicion for bone metatstasis in a cancer pacient even when the bone scan is normal. Diagnose bone metastasis.
CASE INFORMATION: 42 year-old male with history of lung cancer and AIDS presented to our hospital complaining of lower back pain for 1 month. He had a history of AIDS and non-small cell lung cancer. One year before he underwent lung surgery with the intention of left pneumonectomy because all the studies indicated that no metastasis were present. After the surgery patient developed pneumonia and Staphylococcus aureus bacteremia (MSSA) and recovered after intensive antibiotic treatment. At the presentation patient was on antiretrovirals and nonsteroidal anti-inflamatory drugs (NSAID). He was evaluated 2 weeks prior and prescribed NSAIDs for what it was diagnosed as sciatica. The pain wasn't relieved got worse and the patient decided to go to ER. He was complaining of lower back pain irradiating on his left leg when he was walking,not relieved by rest, associated with numbness, no improvement after NSAID. The patient was admitted to the hospital for further evaluation. A plain L-S spine series revealed a filling defect at the level of L1. He received Dilaudid with good improvement of his pain.All the laboratory results were within normal limits. On physical examination he was walking with difficulties, there was point tenderness in the lumbo-sacral area. A bone scan performed next day was negative for any bones lesions. A CT scan of the L-S spine showed a lytic lesion in the lumbar area L1. The patient was scheduled for radiotherapy but a week later he became confused. He developed brain metastasis and expired 1 month after his presentation to the ER.
DISCUSSION: The skeleton is the third most common site of metastatic disease, after lung and liver.Plain radiographs of the involved area should be performed in every patient suspected of having a skeleton involvement. Several metastatic lesions are known to result in low levels of reactive bone formation and a negative (false negative) bone scans: lung cancer,lymphoma,thyroid cancer, and breast cancer. For the detection of vertebral bone metastasis CT scan and MRI are particularly useful. Theissen et. al. prospectively studied the value of MRI in screening for bone metastasis compared to bone scan. The conclusion was that bone scan should currently be the method of choice for screening for bone metastasis. In conclusion, bone pain of uncertain origin in a patient with history of cancer should alert the clinician to the possibility of metastasis and bone scan and CT scan/MRI should be done.



CT Scan 1.



**WALDENSTROM'S MACROGLOBULINEMIA.** C. Ilinca-Pruzan[1]; [1]New York Medical College, Metropolitan Hospital Center, New York, NY *(Tracking ID #50665)*

LEARNING OBJECTIVES: Recognition of hyperviscosity syndrome. Transfusion and hyperviscosity.
CASE INFORMATION: 70 year-old African-American woman was referred to our hospital from a medical clinic because of an incidental finding of pancytopenia. As per patient her last physical examination was 10 years ago.She start having some numbness and a sensation of pins and needles in her legs so she seek medical attention. She was also complaining of weakness,weight loss (55 lbs in 2 years) and shortness of breath.The patient had a history of COPD and she was an ex-smoker(history of 35 pack-years). Her medications were Proventil, Aerobid. She denied any history of headache, blurred vision, bone pain,night sweats or bleeding. On physical examination she had a cachectic appearance, pale conjunctiva and the fundoscopy revealed dilated retinal vessels. The chest was barrel-shaped with bilateral ronchi, hypersonant. An II/IV systolic ejection murmur was heard on the tricuspid area, tacycardia. The liver and spleen were within the normal range. Extremities revealed muscle wasting and proximal weakness more on the lower extremities. The labs showed the following: -Hemoglobin = 6.4 -Hematocrit = 21 -WBC = 2 -Platlets = 46. She was transfused 2 unites of PRBC, with worsening of her shortness of breath.The patient also accused blurred vision that resolved in a couple of days.At this moment a differential diagnosis included:acute leukemia,aplastic anemia, myelodysplasia, infection.During the next days additional labs were performed: -Total protein = 11.2 -Albumin = 3.3 -Ureea = 29 -Creatinine = 0.8 -Negative proteinuria -SPEP = monoclonal protein(gamma) -Immunofixation (serum) IgM = 6370mg/dl -Peripheral smear showed rouleaux formation and Dutcher's bodies. Aspiration and core bone marrow biopsy were performed: marked hypercellular marrow, extensive replacement of marrow elements by a profound proliferation of mixed lymphocytes; lymphoplasmocytic lymphoma; Waldenstrom's macroglobulinemia. After the results of the bone marrow biopsy 2 additional tests were done: viscosity = 4.3cP, normal range1.4 – 1.8cP and an ophthalmologic consult noted fundoscopic changes consistent with hyperviscosity syndrome. The patient refused any further work-up and was discharged. She was readmitted 1 month later because of difficulties breathing due to her COPD. She expired due to respiratory failure, refusing intubation or any other aggressive measures.
DISCUSSION: There are no studies to show the effect of transfusion in Waldenstrom macroglobulinemia but it is clear that this hypervicosity syndrome can only be negatively affected by transfusion. Most patients develop symptoms when the relative plasma or serum viscosity is more than 4cP. In our patient the transfusion aggravated her shortness of breath and we hypothesized that in a patient with Waldenstrom's macroglobulinemia transfusion should be carefully done and only when strongly indicated because it can aggravate the hyperviscosity syndrome. The measurement of the plasma viscosity is a useful tool in screening patients with dysproteinemias.

**A CASE OF METHEMOGLOBINEMIA AFTER EXPOSURE TO BENZOCAINE SPRAY.** D.C. Ishizawar[1], J.C. Rhee[1], P.B. Hasley[1]; [1]University of Pittsburgh, Pittsburgh, PA *(Tracking ID #46486)*

LEARNING OBJECTIVES 1 TO 3: To recognize, diagnose, and treat methemoglobinemia.
CASE INFORMATION: M-R.J. is a 58 year old white female with a PMH of allergic angiitis and granulomatosus (Churg-Strauss disease) who was admitted with new onset of atrial fibrillation. At an outside facility she had undergone pharmacologic treatment with propaphenone hydrochloride and several unsuccessful direct current (DC) cardioversions. It was decided that DC cardioversion and atrioventricular nodal ablation would be attempted, followed by placement of a dual chamber pacemaker. A transesophageal echocardiogram (TEE) was performed to rule out thrombus formation. A benzocaine-based analgesic spray was administered to the posterior pharynx prior to the TEE. Within one hour after this procedure the patient developed tachypnea and tachycardia. A physical examination revealed perioral and distal upper extremity cyanosis. There were no wheezes or rales. Her cardiac examination had a regular rhythm and no gallops, new murmurs, or rubs. Her skin was cyanotic but warm to touch, and her distal pulses strong. The pulse oximeter read 80%, while the patient was on a 96% MistyOx face mask. An arterial blood gas revealed a normal pH, pCO2 and HCO3. Her pO2 was 302; however, the measured oxygen saturation was only 80%. Her methemoglobin level was 17.3. (Normal <1.0) An infusion of methylene blue 70mg IV was initiated. Within 5 minutes the patient improved. A repeat arterial blood gas showed a pO2 of 142 with a

corresponding SaO2 of 97% on 6 liters of nasal cannula oxygen. Follow up methemoglobin level was <1.7. No additional treatments were required. The patient did well and was eventually discharged to home after successful cardiac procedures.
DISCUSSION: Methemoglobinemia should be considered in all cyanotic patients with a normal or high p02 who are desaturated. Methemoglobinemia results from the oxidation of ferrous iron to the ferric state within the hemoglobin molecule, causing it to be incapable of binding or carrying oxygen. As a result, despite increases in the plasma partial pressure of oxygen, oxygen saturation of hemoglobin remains low, and oxygen delivery to tissues is impeded. Rapid clinical recognition of methemoglobinemia is necessary as hypoxemia quickly ensues. Drugs such as the topical anesthetic agent benzocaine are among the most common offenders causing this disorder. This is an important consideration since topical analgesics are frequently used in common outpatient procedures other than transesophageal echocardiograms. Treatment with methylene blue provides artificial electron receptors for the reduction of ferric hemoglobin to its ferrous state and results in dramatic recovery as oxygen delivery resumes. If recognized and treated early, this disorder should resolve without significant sequelae.

**WHERE DID YOU GET THAT COUGH? WHEN A LUNG MASS IS NOT CANCER.** S.N. Issa[1], D. Buchanan[1]; [1]Cook County Hospital/Rush University, Chicago, IL *(Tracking ID #50780)*

LEARNING OBJECTIVES: 1) Recognize the clinical symptoms of chronic pulmonary blastomycosis. 2) Emphasize the importance of obtaining cultures for pulmonary blastomycosis in patients from endemic areas with suspected bronchogenic carcinoma.
CASE INFORMATION: A 54 year old diabetic male presented to the outpatient clinic with a six week history of productive cough, low-grade fevers, and general malaise. He had a remote history of tobacco use but denied recent travel, night sweats, or hemoptysis. His physical exam was unremarkable; laboratory data revealed a blood glucose level of 544, and urinalysis was negative for ketones. He was diagnosed with hyperglycemia secondary to an upper respiratory tract infection and treated with insulin. He was instructed to increase is oral hypoglycemic agent and his fluid intake. On follow-up one week later, he complained of persistent flu-like symptoms, anorexia, and had developed pleuritic chest pain. Over the next month he lost 20 pounds. At this point a chest x-ray revealed a mass in the left upper lobe (LUL) with volume loss. Malignancy was suspected. Follow-up with a contrast CT scan showed a likely mass in the LUL with adjacent lung consolidation and volume loss. There was also nodularity on the pleural surface at the left base. The subsequent work-up included a sputum mycology culture that did not produce a pathogen and an alveolar lavage that revealed blastomyces.
DISCUSSION: This patient was found to have chronic pulmonary blastomycosis (CPB). The typical CPB patient presents with 2 – 6 months of productive cough, hemoptysis, weight loss, and pleuritic chest pain. As in our patient, isolated lung involvement is present in about 75% of the cases. In these patients, mass-like lesions resembling bronchogenic carcinomas are the second most common radiographic finding after segmental infiltrates. In cases resembling bronchogenic carcinoma there are no definitive symptoms or radiographic signs that can effectively differentiate these diagnostic possibilities. Definitive diagnosis requires a culture of an alveolar lavage, biopsy, or sputum growing Blastomyces dermatitidis. This case emphasizes the importance of routine fungal cultures in the evaluation of patients with suspected bronchogenic carcinoma in areas endemic for blastomycosis.

**ITCHING AFTER A SHOWER: WHAT DOES IT TELL US ?** H. Jneid[1], A.K. Jaffer[1], J.H. Isaacson[1]; [1]Cleveland Clinic Foundation, Cleveland, OH *(Tracking ID #51840)*

LEARNING OBJECTIVES: 1) Recognize aquagenic pruritis as a presenting symptom of polycythemia vera (PV). 2) Recognize some of the clinical features and diagnostic challenges asssociated with PV.
CASE INFORMATION: A 68-year-old male smoker with a history of diabetes, hypertension and hyperlipidemia presented to his doctor with a 6-month history of itching after his daily shower. The itching is more pronounced in the anterior chest and lasts approximately 1 hour. The patient reports little relief after using skin care lotion. He denied any associated rash or change in soaps or shampoo. He also denied headaches, visual disturbances, weakness, dizziness, fatigue, excessive sweating, weight loss, epistaxis or easy bruising. His medications for the last year included metformin, glyburide, lisinopril, fenofibrate and aspirin. His physical exam was significant for a BP of 182/80 (previously controlled), pulse of 56 and the O2 saturation was 95%. He had facial plethora. There was no lymphadenopathy or hepatosplenomegaly. The rest of the exam was normal. Investigations revealed a WBC = 7.6 k/uL, RBC = 6.41 M/uL, hemoglobin = 20g/dL, hematocrit = 58.5% and platelets = 189 K/u. Chemistries and liver enzymes were normal except for a glucose = 156mg/dL. Additional testing for PV revealed low Leukocyte alkaline phosphatase and erythropoietin levels and elevated vitamin B12 and B12 binding capacity levels. An abdominal ultrasound revealed mild splenomegaly. Since the patient had no leukocytosis or thrombocytosis, he was initiated on weekly phlebotomy. Daily cetirizine was started for his aquagenic pruritis. He will be following up in 4-weeks.
DISCUSSION: Aquagenic pruritis is a chronic, distressing condition that occurs when the skin comes in contact with water. Usually after a bath or shower, a patient experiences intense itching without visible skin changes. It is apparently associated with local release of acetylcholine, mast cell degranulation and elevated histamine levels. This symptom has been associated with hematological conditions such as PV and hypereosinophilic syndrome. This symptom occurs in about 40% of patients with PV. Therefore, these patients must always be ruled out for this condition. Facial plethora occurs in up to 60 – 70% of patients. Our patient satisfies many of the classical diagnostic criteria originally proposed by the PV Study Group. He has two major criteria: 1) increased red cell mass as manifested by the elevated surrogate of hemoglobin and RBC count and 2) normal oxygen saturation. He also has three minor criteria: 1) splenomegaly by radiologic imaging 2) increased vitamin B12 and 3) increased B12 binding capacity. A low level of the hormone Erythropoietin is one of the new modified diagnostic criteria that further supports our diagnosis. Treatment of this condition requires weekly phlebotomy to reduce blood hyperviscosity. This induces a state of iron deficiency, thereby decreasing and preventing rapid re-expansion of the red cell mass and preventing thrombotic complications.

**OSTEOMYELITIS PRESENTING AS A SOFT TISSUE MASS.** M. Avila[1], A.K. Jaffer[1]; [1]Cleveland Clinic Foundation, Cleveland, OH *(Tracking ID #52370)*

LEARNING OBJECTIVES: 1) Recognize osteomyelitis of the clavicle as a rare cause of a soft tissue mass. 2) Diagnose and manage osteomyelitis of the clavicle.
CASE INFORMATION: A 52-year-old man with history of asthma and depression presented to his physician with sternoclavicular joint pain 1-week after installing a satellite dish. Movement of his right arm exacerbated the pain which radiated into the trapezius and deltoid area. The patient denied trauma. A presumptive diagnosis of tendonitis was made. He was treated with NSAIDs and physical therapy. One week later, pain symptoms persisted but he had now developed redness and swelling of this area. He also reported occasional night sweats. Therefore, he seeked further evaluation. The patient was found to be afebrile during the physical exam. A 3 $\times$ 4 cm indurated, non-mobile sternoclavicular mass was observed. The mass was minimally tender to deep palpation. There was erythema and swelling extending superior to the suprasternal notch and laterally to the mid portion of the right clavicle. Radial and ulnar pulses were intact. There was no evidence of superficial venous dilatation or lymphadenopathy. The physical exam was otherwise normal. Laboratory evaluation revealed WBC = 5.9, CRP = 13 and WSR = 110. A subsequent MRI revealed soft tissue prominence about the right sternoclavicular joint as well as abnormal signal intensity involving the medial end of the clavicle. Injection of gadolinium revealed marked enhancement of these areas. The patient underwent operative debridement. Intraoperative findings revealed osteomyelitis of the right clavicular head with an associated soft tissue abscess. Cultures grew S. Aureus.
DISCUSSION: Lesions of the clavicle are frequently associated with trauma. In the absence of trauma, 37.5 % of lesions represent neoplasms, 25 % represent developmental abnormalities, and 37.5 % represent infections. Osteomyelitis of the clavicle is a rare entity. In large series, the incidence of osteomyelitis of the clavicle is estimated to range from 0 – 7 %. This condition is more commonly seen in children as a result of hematogenous spread. In adults, this condition is rare and most often related to a secondary infection. Risk factors include prior head and neck surgery, post-operative fistula, bacterial tracheitis, drainage catheters, prior irradiation, chemotherapy, subclavian vein catheterization or untreated septic arthritis. Clinical findings suggestive of osteomyelitis include fever associated with pain and erythema of the clavicle in the absence of trauma. Work-up should include radiographic evaluation. Conventional radiography may not be helpful for evaluation of clavicular changes because of overlapping anatomical structures. MRI offers the greatest sensitivity in detecting osteomyelitis. Treatment involves appropriate culture to identify an organism. Deep aspiration or bone biopsy has the highest yield. Intravenous antibiotics with concurrent debridement of the clavicle are the treatment of choice.

**A CASE OF LEGIONELLA PNEUMONIA ASSOCIATED WITH RHABDOMYOLYSIS.** K. Jamma[1], J.F. Graumlich[1]; [1]University of Illinois at Peoria, Peoria, IL *(Tracking ID #51295)*

LEARNING OBJECTIVES: 1. Recognize rhabdomyolysis in a patient with pneumonia should raise the suspicion of Legionella.
CASE INFORMATION: A 53 year old man with developmental delay had delirium, fever, productive cough, and myalgias of 24 hours duration. Admission evaluation revealed lobar infiltrate on chest radiograph, acute renal failure and elevated serum creatine phosphokinase. Spinal fluid and brain image exams were negative. Multiple cultures and antigen tests were negative except urinary legionella antigen. Improvement followed volume, erythromycin and cephalosporin (third generation).
DISCUSSION: Legionella pneumophila pneumonia is associated with multi-system pathology including rhabdomyolysis. The pathophysiology is related to acute tubulointerstitial nephritis. Rhabdomyolysis in a patient with pneumonia should raise the suspicion of Legionnaire's disease.

**A MINUTE ORGAN CAUSING MASSIVE CARDIAC CHANGES.** T.L. Jarrett[1], A. Ghazale[1], D.W. Brady[1], C. Sam[1]; [1]Emory University, Decatur, GA *(Tracking ID #52140)*

LEARNING OBJECTIVES: 1. Recognize the cardiac changes which can occur with thyrotoxicosis. 2. Consider thyrotoxicosis in the differential of delirium.
CASE INFORMATION: A 28-year-old male presented to the emergency room with altered mental status. His chief complaint was fever with nausea and vomiting for 48 hours and diarrhea for the past month. During the interview, the patient exhibited multiple episodes of delirium lasting from 30 minutes to one hour, after which the patient would return to his usual state of consciousness. In the emergency room, the patient's vital signs were BP 143/87, pulse 117, respirations 18, and temperature 36.8C. During his emergency room course, the patient's temperature rose to 38.7C. Physical exam revealed tachycardia with a 2/6 systolic murmur, episodes of delirium, and a mild tremor. No head trauma, thyromegaly, or hepatosplenomegaly was noted. With the new onset of altered mental status and fever, a workup for meningitis and sepsis was begun. CT scan of the head was unremarkable. Lumbar puncture revealed opening pressure 27 mmHg, protein 15 mg/dl, glucose 51 mg/dl (serum glucose 99 mg/dl), no white or red blood cells, no organisms on gram stain, and India Ink stain negative. Chemistries, CBC, and liver enzymes were all normal. Chest radiography showed an enlarged cardiac silhouette compared to an x-ray done 6 – 8 weeks prior to admission. An echocardiogram performed in the ER revealed a dilated cardiomyopathy with an ejection fraction of 30%, severe mitral regurgitation, and moderate tricuspid regurgitation. During the echocardiogram, the patient went into atrial fibrillation which converted to sinus rhythm with medical therapy. Blood cultures and cultures for Kawasaki A/B virus were sent and reported as negative. Extended drug screen was negative. The patient was admitted to the ICU and continued to have episodes of delirium. His heart rate was controlled with diltiazem. On the second hospital day, thyroid studies revealed an elevated T4 of 6.68 ng/dl (nl 0.9 – 1.9), T3 of 420 ng/dl (nl 80 – 200), and a low TSH of 0.0005. Thyroid receptor antibodies were elevated at 82 as well as microsomal antibodies reactive at a titer of 1:1024. The patient was diagnosed with Graves' Disease and, after 4 days of hospitalization, was discharged on propylthiouracil, atenolol, lisinopril, and aspirin.

DISCUSSION: Patients with thyrotoxicosis present with common symptoms of hypermetabolism, excessive adrenergic response, fever, nausea, vomiting, diarrhea, and tachycardia (often with atrial fibrillation). This case shows an unusual presentation of sudden, massive cardiomegaly which developed in just under 2 months. It also illustrates an important diagnostic feature of thyrotoxicosis which is hyperpyrexia out of proportion to other findings. Frank psychiatric symptoms, as well as sudden cardiomegaly, are rare findings in thyrotoxicosis. Clinicians should consider the possibility of thyrotoxicosis when treating patients with delirium and the accompanying hypermetabolic symptoms of hyperthyroidism. Thyrotoxicosis should also be considered in the setting of rapidly appearing cardiomegaly.

**IDENTIFICATION OF 45X/46XY MOSAICISM IN A 26 YEAR OLD FEMALE PRESENTING WITH PRIMARY AMENORRHEA.** R.K. Jarve[1], A. Mortensen[2]; [1]Wayne State University, Dearborn, MI; [2]Wayne State University, Detroit, MI *(Tracking ID #52182)*

LEARNING OBJECTIVES: 1. Evaluation of primary ammenorhea in the primary care setting. 2. Recognition of the stigmata of Turner's syndrome in the primary care setting. 3. Treatment of Turner's Syndrome.
CASE INFORMATION: A 26 year old female presented to our clinic for a routine history and physical. History revealed primary amenorrhea. The patient did not report any history of trauma or surgery and family history was negative. She had no episodes of recurrent abdominal pain or fullness. She denied dry skin, hoarseness or deepening of voice, palpitations, polyuria, polydipsia, hirsutism or temporal balding. She denied any medical problems, was not taking any medications. She does not smoke, drink, or take illicit drugs and denied ever being sexually active. She is a college graduate who is currently employed. On physical exam she was an obese female of short stature who appeared to be quite anxious. Vital signs showed an afebrile female, pulse of 141 and blood pressure of 141/86 with a normal respiratory rate. She was noted to have a single central incisor and acanthus nigracans on her neck with out an enlarged thyroid gland. Her cardiovascular exam revealed tachycardia with a regular rhythmn. She was noted to have no axillary hair, a shield chest and tanner stage I breast development. Abdominal exam revealed no stria or hepatosplenomegaly. Genital exam revealed tanner stage V pubic hair development with a normal clitoris and labia majora. She was noted to have small poorly developed labia minora and a small introitus revealing pink shiny smooth mucus membranes. A pelvic and bimanual could not be completed secondary to failure to advance. Her lung, neurologic, and musculoskeletal exams were within normal limits.
DISCUSSION: Evaluation of our patient with primary amenorrhea revealed no history of abdominal cramping or fullness, or trauma to suggest a possible distal outflow tract obstruction. The physical exam showed absence of secondary sex characteristics which was suggestive of either a central nervous system-hypothalamic-pituitary problem, or primary gonadal dysfunction. Our patient also had absence of secondary sex characteristics without signs of virilization, gallactorhea, or a mullarian duct defect which made us highly suspicious for the possibility of either a midline defect in view of her single central incisor or Turner's syndrome in view of her shield chest, and short stature. Laboratory evaluation revealed an elevated follicle stimulating hormone and leutenizing hormone with low testosterone and estradiol levels which suggested primary gonadal dysfunction. This was confirmed by chromosomal analysis which showed 45XO/46XY allowing the diagnosis of Turner's syndrome. Treatment consisted of removal of the gonadal streaks to reduce the risk of malignancy and hormone replacement.

**MENTAL STATUS CHANGES: THE IMPORTANCE OF A THOROUGH HISTORY.** H. Jasti[1], R. Granieri[1]; [1]University of Pittsburgh, Pittsburgh, PA *(Tracking ID #50377)*

LEARNING OBJECTIVES: 1) Recognize the clinical presentation of lithium toxicity. 2) Outline the effects of this condition.
CASE INFORMATION: A 59 year-old white male, with a PMH of manic-depression and hypertension, presented after involvement in a motor vehicle accident (MVA). CT scans of his head and abdomen (with contrast) were unremarkable and he was discharged to home. One week later, the patient experienced progressively worsening mental status changes (somnolence, confusion, disorientation), urinary incontinence, and muscle weakness. Medications at the time of admission included lisinopril. He had no known drug allergies. His PE was unremarkable, with the exception of the neurological exam. He was alert and oriented X 2 (name and month; could not name place); CN II-VIII were intact; remaining CN's could not be evaluated given poor patient cooperation; no nystagmus was noted; reflexes were 3+; unable to test standing, gait, or Romberg's tests. Pertinent labs upon admission included hemoglobin (13) and BUN/Cr (59/2.4). His BUN and Cr one month earlier were 14/1.4. A urinalysis and urine toxicology screen were (–). Urine osmolality was 407, Na of 24, Cr of 110. Further history later obtained from the wife revealed that the patient had been on lithium. A serum lithium level was 3.2 (0.6 – 1.2). He underwent emergent dialysis with a subsequent decrease in lithium levels to 1. His mental status changes completely resolved. We postulate that the contrast media the patient had initially received after his MVA worsened his baseline chronic renal insufficiency, thereby resulting in the toxic lithium levels.
DISCUSSION: The half-life of lithium, which is renally excreted, is approximately 18 – 24 hours. Levels greater than 1.5 are considered toxic, with levels greater than 2.5 requiring immediate hemodialysis. Manifestations of lithium intoxication are multi-fold and involve multiple systems: CNS (memory impairment, hyperreflexia, fatigue/weakness, ataxia, seizures); renal (nephrogenic diabetes insipidus); endocrine (hypothyroidism); and GI (nausea and vomiting). Given lithium's location in the intracellular space and the time needed for full penetration of the CNS, the patient can have worsening symptoms even while the lithium levels are falling (i.e. the rebound effect). Thus the emphasis should not only be on the serum lithium levels, but also on the patient's clinical status. Treatment is largely supportive and includes correcting fluid and electrolyte losses, diuresis and, if necessary, dialysis. This case highlights the importance of obtaining a careful medication history and of being cognizant of the side effects of common diagnostic tests.

**THE CASE OF THE UNSTEADY GAIT: GETTING TO THE HEART OF THE MATTER.** H. Jasti[1], R. Granieri[1]; [1]University of Pittsburgh, Pittsburgh, PA *(Tracking ID #50378)*

LEARNING OBJECTIVES: 1) Recognize the clinical presentation of a myxoma. 2) Outline the pathophysiology of this condition.
CASE INFORMATION: A 41 year-old male with a PMH significant for Crohn's disease presented with an acute onset of facial numbness, localized to the right cheek, lips, and tongue, and difficulty ambulating. The symptoms had started one day earlier and were more pronounced at the time of admission. There was no family history of cancer or cardiovascular abnormalities. On physical exam, cardiac auscultation revealed no murmurs or "plops". Neurological exam revealed decreased sensation on the right cheek, both lips, and tongue. Remaining sensation and muscle strength was normal. On cerebellar exam, he had gait ataxia and a tendency to fall to either side. Romberg's sign was equivocal; however, finger-to-nose and heel-to-shin tests were normal. Labs, including CBC, electrolytes, vitamin B-12, folate, TSH, lipid profile, and hypercoagulation panel were normal. Blood cultures were also negative. A brain MRI revealed infarcts in the cerebellum and the cerebellopontine angle. MRA noted clear carotids bilaterally and normal intracranial vessels. A TEE revealed a 5 mm pedunculated mass on the ventricular side of the anterior mitral valve leaflet. Subsequent surgical removal of the mass confirmed a myxoma.
DISCUSSION: Primary cardiac tumors are rare. A study by Lam et al. reported the prevalence to be approximately three out of ten thousand general autopsies. In comparison, metastatic disease is 20 – 40 times more common. The most common primary cardiac neoplasm is a myxoma. They tend to occur in middle age, more often in women than in men. Myxomas are usually pedunculated, gelatinous in consistency, and friable. Approximately 75% originate in the left atrium, 15% in the right atrium, and 5 – 10% in the left ventricle. The typical presentation of a left atrial myxoma consists of a triad of mitral valve obstruction, systemic embolization, and constitutional symptoms. A study by Pinede et al. noted the presence of mitral valve obstruction in 67%, embolism in 29%, and constitutional symptoms (e.g. fever, malaise, weight loss, or symptoms of a connective tissue disease) in 34%. 10% however were asymptomatic. Episodic pulmonary edema, classically occurring when an upright posture is assumed, and signs of low output may also be present. The majority of patients, however, are diagnosed by the unexpected detection of a tumor at the time of echocardiography. Given the similarity in presentation, the picture may be confused with infective endocarditis, cancer, or autoimmune diseases. Therefore a high level of suspicion should be present when a patient presents with signs of systemic embolization and/or rapidly progressive heart failure, and the possibility of a myxoma should be considered.

**THE CHRONICALLY ABNORMAL LAB VALUE.** H. Jasti[1], R. Granieri[1]; [1]University of Pittsburgh, Pittsburgh, PA *(Tracking ID #50610)*

LEARNING OBJECTIVES: 1) Identify the presentation and risk factors for Type 4 renal tubular acidosis (RTA). 2) Diagnose and manage Type 4 RTAs.
CASE INFORMATION: A 78 year-old male with a history of hypertension, diabetes, osteoarthritis (OA), and chronic renal insufficiency presented with lower extremity (LE) cellulitis. Medications included verapamil and glyburide. He also endorsed taking increased amounts of naproxen over the last few weeks for his OA. He was not on an ACE-inhibitor, due to a history of hyperkalemia. The physical exam, with the exception of the cellulitis on his LE, was within normal limits. Routine labs revealed hyperkalemia (6.2). The remaining labs were notable for: Na (139), Cl (110), HCO3 (19), and BUN/Cr (44/1.3). Anion gap was 10. Urine pH was 5. A transtubular potassium gradient (TTKG) was 5. ECG revealed a normal sinus rhythm and slightly peaked T-waves in leads V2-V4. Review of his past medical records revealed an increased K level over the past one year (4.9 – 5.7). Further testing revealed low aldosterone and renin levels. His K levels responded well to oral sodium polystyrene, glucose/insulin, and Ca gluconate. The naproxen was discontinued and he was encouraged to adhere to a low-K diet. Upon discharge, his K was 4.2.
DISCUSSION: Hypoaldosteronism (hypoaldo) is one of the main causes of chronic hyperkalemia due to impaired potassium excretion (Type 4 RTA). Hyperkalemia is a potent stimulus to aldosterone release, which acts on the distal tubules of the kidney to increase K secretion. Therefore, a fall in aldosterone levels can result in hyperkalemia. One of the most common causes of hypoaldo is hyporeninemic hypoaldo. This condition most often occurs in those 50 – 70 years of age with mild-moderate renal insufficiency, usually due to diabetic nephropathy or chronic tubulointerstitial disease. In the diagnosis of hypoaldo, one must also rule out the usage of medications, such as NSAIDs, ACE-inhibitors, cyclosporine, or heparin. These medications further inhibit renin secretion and can exacerbate the hyperkalemia, especially in those patients with pre-existing renal insufficiency. The transtubular potassium gradient (TTKG) can be used to distinguish hypoaldo from other causes of hyperkalemia. A value below 5 is highly suggestive of hypoaldo. Although decreased aldosterone production may also be due to adrenal disease, renin levels are usually normal-high in these scenarios. Fludrocortisone can be effective in patients with hyporeninemic hypoaldo. However it is often not used since many patients have hypertension and/or history of heart failure, problems that can be exacerbated by mineralocorticoid replacement. Most often, a low potassium diet and a diuretic can usually control the hyperkalemia.

**WHIPPLE'S DISEASE.** A. Leung[1], J. Jewell[1]; [1]Cleveland Clinic Foundation, Cleveland, OH *(Tracking ID #52345)*

LEARNING OBJECTIVES: 1. Recognize the clinical features commonly associated with Whipple's disease. 2. Outline the pathologic features of Whipple's disease. 3. Treat Whipple's disease appropriately.
CASE INFORMATION: A 58-year-old Caucasian male with a history of hypothyroidism and mental retardation presented with diarrhea and a 55 pound weight loss over 18 months. Prior to presenting to our institution, the patient underwent an unrevealing work-up, including an upper GI series with small bowel follow through, flexible sigmoidoscopy, an EGD with duodenal biopsy, anti-gliadin and anti-reticulin antibodies, computed tomography (CT) of the abdomen and pelvis, and colonoscopy with multiple biopsies. Physical exam revealed temperature 36.2 C,

BP 95/56, and pulse 60. The patient appeared cachectic. Cardiac and pulmonary exams were normal. The abdomen was mildly distended, with evidence of ascites. Rectal exam revealed normal tone with Guaiac negative stool. The patient had 2+ bilateral lower extremity edema. Neurologic exam was nonfocal. Chemistry panel was notable for Na 142, K 2.8, Cl 116, HCO3 13, BUN 29, creatinine 0.8, albumin 1.6, and phosphorus 2.8. CBC revealed WBC 8.99 with 93% neutrophils, hemoglobin 9.8, and platelets 262. Stool studies were negative for bacterial pathogens, ova and parasites, and C. difficile. A repeat EGD showed diffuse white nodules throughout the second and third portions of the duodenum extending distally. Biopsies performed were consistent with Whipple's disease, revealing an infiltrate of large macrophages with foamy cytoplasm surrounding empty spaces of varying sizes. The macrophage cytoplasm contained inclusions of rods and granules that were periodic acid Schiff (PAS) positive and diastase resistant. Upon confirmation of the diagnosis, the patient was started on ceftriaxone 1 gram intravenously every 12 hours. The patient was discharged on home TPN and on ceftriaxone. After completing 14 days of ceftriaxone, he started trimethoprim-sulfamethoxazole one tablet by mouth every 12 hours for one year. Upon follow-up, the patient had gained approximately 40 pounds and was having one formed stool per day.
DISCUSSION: Whipple's disease is an uncommon systemic bacterial infection caused by Tropheryma whippelii. Without treatment, the disease is deadly, but, with antibiotic therapy, patients improve dramatically. The disease can affect virtually any organ system and can present with multiple symptoms, including diarrhea, weight loss, fever, central nervous system manifestations, and arthralgias. Whipple's disease can present a diagnostic challenge, especially in the absence of gastrointestinal symptoms. Small bowel biopsy is often diagnostic, revealing findings as seen in this patient. Multiple antibiotic regimens are acceptable for treatment, including the one administered to this patient. Whipple's disease is an uncommon, but eminently treatable disease. Clinicians should consider this diagnosis in the evaluation of patients with systemic illnesses.

**10 YEARS OF DIARRHEA: WHAT HAS CHANGED?** H. Jneid[1], A. Jain[1], H. Thacker[1], J. Richter[1]; [1]Cleveland Clinic, Cleveland, OH *(Tracking ID #52418)*

LEARNING OBJECTIVES: 1. Learn the definition and different categories of chronic diarrhea. 2. Learn the diagnostic work up of chronic diarrhea.
CASE INFORMATION: A 50-year old black man was admitted with diarrhea and hypokalemic metabolic acidosis. He reported a 10-year history of diarrhea that recently increased in frequency from 5x to 10x daily. His diarrhea was mostly nocturnal and described as greasy malodorous stools. His medical history was notable for diabetes mellitus, congestive heart failure and chronic renal insufficiency. He also underwent transverse colectomy and chemotherapy 4 months earlier for stage III colon cancer. His physical examination on admission revealed a holosystolic murmur and + 1 pedal edema. Initial workup showed: K = 2.8, creatinine = 3.6, bicarbonate = 7, anion gap = 20. ABG: 7.23/26/96/11/96% on room air. His stool electrolytes were: Na = 90, K = 53, with calculated fecal osmotic gap = 4. A 24-hour stool collection revealed 2,156 kg of greasy stools with 90 grams of fat. After fasting for one day he had > 1,600 Kg of stools in a 24-hour collection. CT abdomen was normal. Stool culture and three stool tests for ova/parasites and C. difficile antigen detection were negative. Strongyloides ELISA and HIV test were negative. Stool alkalinization test for phenolphtalein and urine anthraquinones were normal. Upper and lower GI endoscopies showed diffuse mild patchy mucosal inflammation and 2 superficial esophageal ulcers. Biopsies showed nonspecific inflammation. Small bowel enteroclysis was negative. Gliadin and anti-endomysial IgA antibody titers were normal. Blood levels of calcitonin, VIP and TSH were normal as well as a 24-hour urine collection for 5-HIAA, metanephrine and histamine. Serum gastrin level = 157 (nl = 18 – 47) after the patient was taken off omeprazole. A gastric analysis measuring fasting basal 1-h acid output (BAO) was non-revealing. The patient was treated and discharged home on bicarbonate and potassium supplementation and asked to continue his diphenoxylate therapy. His diarrhea persisted despite outpatient therapy with cholestyramine and pancreatic enzymes. The patient was eventually treated with a 2-week course of metronidazole and reported decrease in his diarrhea frequency to baseline.
DISCUSSION: Diarrhea is defined by stool daily weights > 200 grams. Patients having diarrhea for more than 4 weeks should be evaluated for chronic diarrheal illnesses. Our patient's diarrhea is unlikely to be functional because of its continous high-volume nature and nocturnal predominance.Work up for inflammatory and chronic infectious causes for the diarrhea was non-revealing. His diarrhea is classified as secretory rather than osmotic because of the low fecal osmotic gap (<50 mOsm/Kg) and high-volume output despite fasting. Our patient had also steatorrhea sine his fecal fat content exceded 7 grams daily. Work up for neuro-endocrine tumors (including gastrinoma), laxative abuse, villous adenoma, celiac sprue, pancreatic insufficiency and bile acid-induced diarrhea was non-revealing. We attributed his worsening diarrhea to intestinal bacterial overgrowth since he responded to antibiotics. Intestinal bacterial overgrowth was probably due to his lonstanding omeprazole treatment and acid suppression. We believe his baseline chronic diarrhea is multi-factoriel and that his diabetes and congestive heart failure are major culprits.

**A MENTALLY RETARDED MAN WITH EIGHTEEN MONTHS OF WASTING AND DIARRHEA.** H. Jneid[1], A. Abdel Latif[1], J. Wolf[1], D. Seidner[1], J. Richter[1]; [1]Cleveland Clinic, Cleveland, OH *(Tracking ID #52435)*

LEARNING OBJECTIVES: 1. Recognize Whipple's disease as cause of chronic diarrhea and severe wasting. 2. Learn the diagnostic tests of choice for Whipple's disease. 3. Learn the treatment for Whipple's disease.
CASE INFORMATION: A 59 yo W man was admitted to our tertiary care center for further work up of his 18-month history of diarrhea, weight loss and malnutrition. He reported 3 – 5 watery bowel movements daily and 50 lbs weight loss since the onset of his symtpoms. He had no fever, arthralgia, nausea, vomiting or abdominal pain. He was known to have mild mental retardation and had no changes in his mental status compared to baseline as per his immediate family members. His medical history is also notable for iron deficiency anemia and hypothyroidism. On admission, his vitals showed: T 36.3, P 60, BP 95/67. Positive findings included temporal muscle wasting, soft abdomen with bulging flanks and shifting dullness, and +4 pedal edema. Blood work showed: Na = 142, K = 2.8, bicarbonate = 13, anion gap = 13, BUN = 29, creatinine = 0.8, protein = 3.7, albumin = 1.6, transferrin = 134, hemoglobin = 8.1, MCV = 705, iron = 9, iron saturation = 3%. Thyroid function tests were normal. HIV test was negative. Peripheral parentral nutrition and iron and electrolyte supplementation were initiated. A prior colonoscopy + biopsies done in outside hospital were normal. A CT scan of his abdomen showed anasarca with small and large bowel thickening. Anti-gliadin antibody titers were negative. Stool culture and multiple stool tests for ova/parasites and C. difficile antigen detection were normal. Upper GI endoscopy was normal. Duodenal biopsies showed intensely staining PAS-positive macrophages infiltrating the lamina propria, compatible with the diagnosis of Whipple's disease. The patient received 2 weeks therapy of intravenous ceftriaxone then switched to oral bactrim to continue a one-year course. A baseline CT brain was obtained and was normal. The patient's diarrhea resolved within a week from initiation of therapy. Follow up after 6 months of therapy showed resolution of his diarrhea, weight gain of 30 lbs and decreased anasarca.
DISCUSSION: Whipple's disease is a rare disorder with high predilection for men, usually in their fifth decades. The causative organism is Tropheryma whippelii, a gram-positive and PAS-positive bacillus related to the Actinomycetes family. The four cardinal clinical manifestations of Whipple's disease are: arthralgias, weight loss, diarrhea and abdominal pain. Other less common symptoms include central nervous manifestations (mostly cognitive dysfunction), fever and migratory large-joint arthralgias. Diagnosis is made by tissue biopsies from the small intestine showing extensive PAS-positive macrophages in the lamina propria (PAS stains the intracellular T. whippelli bacteria). The diagnosis can be confirmed, though not usually needed, by the polymerase chain reaction applied to intestinal biposies or body fluids such as the CSF. In 2000, a French group isolated T. whippelii from duodenal mucosa and grow it and subculture it successfully in vitro. Patients without treatment invariably die. Prolonged oral treatment with bactrim for one year following a short course of parenteral penicillin is recommended for complete eradication of the organism and to avoid relapse, especially CNS relapse. We used intravenous ceftriaxone initially instead of penicillin in our patient because of its high CNS penetration and because of the difficulty to assess any mental status he underwent. Most treated patients do well and undergo dramatic response within 1 – 3 weeks after therapy, as happened with our patient.

**PSITTACOSIS PNEUMONIA PRESENTING AS PSEUDO-TUMOR.** A. Kamdar[1], G.C. Wickstrom[1]; [1]Summa Health System, Akron, OH *(Tracking ID #52312)*

LEARNING OBJECTIVES: 1) To review a unique presentation of Chlamydia psittaci pneumonia; 2) To outline the importance of a detailed history in diagnosing psittacosis; 3) To demonstrate diagnostic difficulties when patients self-medicate.
CASE INFORMATION: A 69 year-old non-smoking white male presented in Sept 2001 for an annual examination and complaints of intermittent, right-sided flank pain. The pain was not severe but noticeable as a vague dull ache. Past history was significant for diabetes, benign prostatic hypertrophy, urinary tract infections, remote surgery for renal lithiasis, and abdominal aortic aneurysm (AAA). One year prior (Aug 2000), the patient had had an acute illness with fevers to 103° F, rigors, nausea and vomiting, and diarrhea. At that time, he had self-medicated himself with leftover TMP/SMX. He improved but did not completely resolve his symptoms. Urine and blood cultures were negative; chest x-ray showed no pneumonia or other acute process. A urosepsis syndrome was suspected and the patient was treated with Ciprofloxacin for three weeks. On exam (Sept, 2001), the patient's AAA was estimated at 4 cm without bruit or pulsating mass. CT scan of the abdomen/pelvis was obtained to delineate the AAA and to rule out renal pathology given the flank pain and recurrent urosepsis. On abdominal CT an incidental finding of a 4 cm right lower lobe lung mass was made. During this time, the patient self-medicated with Ciprofloxacin for UTI symptoms. Two weeks later, CT scan of the thorax demonstrated a 2 cm spiculated mass at the right lung base with the possibility of a vascular malformation versus other neoplasm. A CT-guided percutaneous needle lung biopsy identified no malignant cells. Cardiothoracic surgery consultation recommended thoracotomy with excision of the mass with possible lobectomy depending on biopsy results. Upon further questioning, the patient admitted to raising pigeons as well as exposure to both a dead pigeon and a bluejay in his yard within the last year. Chlamydia antibody serologies were obtained and showed a Chlamydia psittaci IgG titer of 1:512 (reference range <1:64). The patient was treated with Levofloxacin for 21 days. Two months later, a follow-up chest CT showed nearly complete resolution of the previously identified mass, indicating pneumonia as the likely etiology. A follow-up chest CT will be done in three months to ensure complete resolution.
DISCUSSION: Psittacosis, caused by Chlamydia psittaci, is primarily a disease of many domesticated and several wild birds and is transmitted to humans. The pneumonia usually produces a chest x-ray pattern of patchy consolidation that may be focal, bilateral, or widely scattered. An interstitial pattern may also be seen. We believe that our patient represents a rare "pseudo-tumoral7" form of Chlamydia psittaci pneumonia which radiographically mimics a solid lung mass. Diagnostic work-up was compromised by an initially incomplete history and the patient's pattern of self-medication with leftover antibiotics at home.

**CALCIPHYLAXIS IN A PATIENT WITH END STAGE RENAL DISEASE.** D.A. Kaufman[1], R. Granieri[1]; [1]University of Pittsburgh, Pittsburgh, PA *(Tracking ID #48092)*

LEARNING OBJECTIVES: 1) Recognize the skin lesions specific to calciphylaxis. 2) Recognize the treatment options available in this condition.
CASE INFORMATION: A 31 year old African American female with sarcoidosis and end stage renal disease presented with increasing bilateral calf and left upper extremity pain and swelling. The pain was described as stabbing and "50 out of 10" in intensity. Visible lesions were noted by the patient on the posterior calves five months prior to presentation. The lesions gradually enlarged, became dark, painful, and indurated. The patient denied fever, chills, weight loss, or muscle weakness. A punch biopsy of the right leg lesion had recently been performed by dermatology, showing solar lentigo and mild dermal edema. Medications included calcium carbonate, sevelemer, and lisinopril. On exam, she was afebrile with BP 170/100 and was in moderate distress when she moved her legs. The left upper extremity revealed

3+ pitting edema and a 10 mm black, macular, indurated lesion on the posterior surface. The right lower posterior calf revealed a 10 cm × 12 cm hyperpigmented, exquisitely tender, indurated eschar with central necrosis, discharging serosanguinous fluid. The remainder of the examination was normal. Labs revealed: WBC 6.5; H/H 11.4/35.1; platelets 235. Calcium 9.1; Phos 5.5; Albumin 2.7; CK <20; PTH 1928. The patient was admitted to the hospital with a diagnosis of calciphylaxis. She underwent urgent parathyroidectomy and debridement of the eschars. Her PTH hours after the surgery was 171.
DISCUSSION: Calciphylaxis is a rare disorder, usually affecting end stage renal patients. It is characterized by medial calcification of systemic arteries. It is manifested as areas of ischemic necrosis on the trunk, buttocks, or extremities; it appears as a violacious, plaque-like subcutaneous nodule. The original macular, purpuric plaques progress to necrotic ulcers with eschars that are prone to infection. Although the pathogenesis is poorly understood, it is thought that uremia predisposes patients to abnormalities in mineral metabolism that lead to vascular and soft tissue calcification. Although hyperparathyroidism, hypercalcemia, and hyperphosphatemia usually play a role in calciphylaxis, these factors are present in many patients with ESRD without calciphylaxis and there is no correlation between the severity of these abnormalities and the development of calciphylaxis. The diagnosis is suggested by the typical skin lesions and consistent laboratory values of PTH, calcium, and phosphate. Skin biopsy can confirm arterial occlusion and calcification without vasculitic change. The primary treatment is aggressive wound care, as wound infection is responsible for the high mortality of this disorder. Cessation of vitamin D supplementation, the use of sevelemer (Renagel) rather than calcium acetate, and avoidance of local tissue trauma are other helpful interventions. Prompt parathyroidectomy if PTH is > 200 can help correct mineral abnormalities. Those who develop calciphylaxis have a poor prognosis. One study showed that 1 and 5 year survival rates for dialysis patients were halved in patients with this disorder.

**ADULT ONSET TYPE 2 DIABETES MELLITUS OR ADULT ONSET TYPE 1 DIABETES MELLITUS.** M. Kawai[1], N. Kathuria[1]; [1]St. Luke's-Roosevelt Hospital Center, New York, NY *(Tracking ID #50506)*

LEARNING OBJECTIVES: To consider the possibility of adult onset type 1 diabetes mellitus (DM) in patients with atypical type 2 DM who have acute worsening of their blood glucose control.
CASE INFORMATION: A 46 year-old male had been followed in our clinic for 2 years with a diagnosis of type 2 DM. Until three months prior he had well controlled blood glucose levels on glyburide 2.5 mg daily, with hemoglobin A1c at less than 6.0%. He reports good compliance with his medication, denying any common reason for worsening blood glucose control, including acute illness, new medication, changing life style, and body weight change. He now presents with three months of worsening polyuria and polydipsia, with self-monitored glucose levels peaking at 280 – 300 recently. The patient is a thin male with a BMI of 22. Physical exams were otherwise unremarkable.
Labs were notable for serum glucose of 330 mg/dL and hemoglobin A1c at 12.9%.
Rosiglitazone 4mg was substituted for glyburide, but for the next two weeks blood glucose remained above 250 mg/dL. Serum c-peptide level was ordered and came back as less than 0.3 mg/dL. He was diagnosed as type 1 DM at this point and insulin was started.
DISCUSSION: Type 1 DM is characterized by estruction of the pancreatic beta cells, leading to absolute insulin deficiency. In typical type 1 DM, after the initial clinical presentation of diabetes, patients can often have a "honeymoon" phase when glucose control is achieved with modest dose of insulin or sometimes without insulin. The "honeymoon" phase may last for many months after which patients become insulin deficient requiring insulin.
In usual clinical setting, the diagnosis of type 1 DM is made by history and onset of age. Most of type 1 DM is younger than 40 year-old. So, DM in patients older than 40 is assumed type 2, even though some patients do not match typical feature of type 2 DM. The presence of adult onset type 1 DM among type 2 patients has been recognized recently. The fact that antibody to glutamic acid decarboxylase (GAD) is positive among about 10% of patients diagnosed as type 2 DM supports this idea. These adult onset type 1 DM patients are characterized by low BMI, positive family history of type 1 DM. There is no clear guideline regarding how to screen and follow up possible cases.
In our case, diagnosis as type 2 DM was apparently made during "honeymoon" phase because of adult onset of his illness. Measuring serum c-peptide played an important role in his diagnosis. Thus, it is suggested that serum c-peptide should be checked if blood glucose control deteriorate rapidly without any known cause in a "type 2" DM especially with an atypical presentation.

**KWASHIORKOR: NOT JUST A THIRD WORLD PROBLEM.** I. Kazem[1], S. Sangam[1], K. Mckee[1], H. Aoun[1], R.D. Hobbs[1]; [1]Oakwood Healthcare System, Dearborn, MI *(Tracking ID #51860)*

LEARNING OBJECTIVES: To recognize the physical findings of Kwashiorkor (protein energy malnutrition) and emphasize its continued presence in the United States.
CASE INFORMATION: A 66 year-old woman presented with mild obtundation, diarrhea and weakness. Past history revealed anemia, hypothyroidism, depression, and multiple cosmetic surgeries. Medications included thyroxin and multivitamins. Physical exam showed patches of reddish-orange hair, 3+ leg edema and temporal wasting. The abdomen was slightly distended. Tests revealed hypoalbuminemia, hypocholesterolemia, hyponatremia, hypomagnesemia, a slightly elevated TSH, and mild anemia. Protein-calorie malnutrition was diagnosed. When confronted, she admitted that she ate a single bowl of rice per day because she was "fat." She was afraid of "side effects" and rarely took her thyroxine. A regular diet, TPN, psychiatric consultation and reinstitution of her medications were prescribed She improved and was discharged to a nursing home.
DISCUSSION: Kwashiorkor still exists in the United States. The constellation of temporal wasting with edema, apathy, hypoalbuminemia and hypocholesterolemia suggests the diagnosis. Thinning of the hair with patches of reddish hair (the flag sign) is pathognomic since color is lost during periods of malnutrition. With time there is loss of pancreatic mass and resultant diarrhea. Cardiomyopathy may occur due to cardiac atrophy. Therapy can be difficult in the face of psychological problems. In the current case, the patient left the nursing home, refused follow-up, returned to her diet and died several weeks later.

**AN UNUSUAL CASE OF PROTEINURIA: FABRY DISEASE.** B. Kazienko[1], K. Jordan[1]; [1]Riverside Methodist Hospital, Columbus, OH *(Tracking ID #50815)*

LEARNING OBJECTIVES: 1. Evaluate and diagnose a patient with proteinuria. 2. Recognize that Fabry disease may co-exist with secondary renal pathologies.
CASE INFORMATION: A 33 year-old caucasion male presented for evaluation of proteinuria. He had a long known history of proteinuria, documented by 24 hour urine, but no other evaluation previously. Interestingly, his mother and brother had proteinuria of unknown etiology. On presentation, he complained of nausea, vomiting, gastrointestinal bleeding, 20 pound weight loss, and fatigue. He was a pale, ill-appearing male with blood pressure of 136/70, and a soft systolic ejection murmur. Specifically, there were no skin lesions, and abdominal and neurological exams were within normal limits. Abnormal laboratory studies included a creatinine of 3.5 mg/dL, hemoglobin of 8.4 gm/dL, and sedimentation rate of 115 mm/hr. P-anca, C-anca, and complement studies were normal. Anti-glomerular basement membrane antibody was less than 5 EU/ml. Protein electrophoresis was within normal limits. CD4 and hepatitis studies were within normal limits.
Initial differential diagnoses included malignancy or inflammatory bowel disease with renal manifestations. Further evaluation with upper and lower gastrointestinal endoscopy was normal except for mild gastritis and hemorrhoids. Renal biopsy revealed focal proliferative glomerulonephritis with crescent formation and glomerulosclerosis. Electron microscopy showed lamellated "myelin-like" bodies and serpiginous, curvilinear deposits in the background of large subendothelial electron dense deposits. An alpha-galactosidase level was low at 3.6, and a diagnosis of Fabry disease was made.
DISCUSSION: The causes of renal failure and proteinuria are vast. This case highlights on unusual cause. Fabry's disease is an X-linked recessive lysosomal storage disorder that may present with proteinuria. The disease results from the deficient activity of alpha-galactosidase A. Patients with residual alpha-galactosidase activity may be asymptomatic or have late-onset of mild manifestations. Signs and symptoms of Fabry disease include acroparesthesias, corneal and lenticular opacities, angiokeratomas of the skin, and vascular disease of the kidney, heart, and brain. Renal involvement is apparent by the second to fourth decade.
Our case is interesting in that our patient had a co-existing immune complex glomerulonephritis in association with his diagnosis of Fabry disease. Other case reports of patients with co-existing crescentic glomerulonephritides have also lacked the typical characteristics of Fabry disease such as painful acroparesthesias and cutaneous angiokeratomas, similar to our patient. Current treatment research in Fabry disease focuses on enzyme replacement with early promising results.

**DIABETES, THYROMEGALY, AND ACUTE WEAKNESS.** A. Kewalramani[1], N.K. Parekh[1], L.A. Orlando[1]; [1]Tulane University, New Orleans, LA *(Tracking ID #50759)*

LEARNING OBJECTIVES: 1. To recognize that a careful history and examination in adult patients with acute weakness are necessary to discover the etiology of periodic paralysis. 2. To recognize that hyperinsulinemia may act in unison with hyperthyroidism to induce transient hypokalemia and paralysis.
CASE INFORMATION: A 49-year-old diabetic Vietnamese man presented with two episodes of sudden lower extremity weakness. Both episodes were characterized by a sudden inability to walk, spontaneously resolving after three hours. There was no preceding exercise, stress, illness or change in his diet. He had a non-tender diffusely enlarged thyroid without nodules. The neurologic exam was normal. His serum potassium was 2.4 mg/dL, TSH was 0.03 mIU/L, and free T4 was 3.5 ng/dL. Grave's disease was confirmed by a diffusely increased iodine uptake. Therapy with propranolol and subsequently 131I ablation was successful in preventing reoccurrence of both the hypokalemia and paralysis.
DISCUSSION: Hypokalemic periodic paralysis can be either familial or thyrotoxic. Asian men are at increased risk for thyrotoxic periodic paralysis. This disease has been linked to an abnormal muscle calcium channel that in the euthyroid state is not sufficient to produce symptoms. Hyperthyroidism, however, may predispose susceptible individuals to spontaneous, transitory hypokalemia and paralysis. The hyperthyroidism associated with thyrotoxic periodic paralysis may be subtle, as seen in our patient. A careful history and examination in adult patients with acute weakness is necessary to elucidate the evidence for a secondary cause of periodic paralysis. The transitory nature of symptoms, the adult onset and a lack of family history are suggestive of the diagnosis. Insulin causes intracellular potassium shifts resulting in transient hypokalemia. Hyperinsulinemia in insulin resistance may act in concert with hyperthyroidism to promote transient hypokalemia and paralysis. This synergy may allow subtle hyperthyroidism to present with periodic paralysis.

**CALCIPHYLAXIS: DOES END STAGE RENAL DISEASE HAVE TO COEXIST?** G.N. Khan[1], R. Abou Jawde[1], B.J. Hoogwerf[1]; [1]Cleveland Clinic Foundation, Cleveland, OH *(Tracking ID #51651)*

LEARNING OBJECTIVES: Recognize that calciphylaxis can occur in the absence of end stage renal disease. INTRODUCTION: Uremic intimal hyperplasia with medial calcification (so called "Calciphylaxis") is a rare and poorly characterized disorder that has heretofore been described largely in dialysis patients. The following case report describes this disorder in a patient not on dialysis.
CASE INFORMATION: A 69 year old white female presented with a symptom complex of hip pain, skin nodules, and non-specific myalgias. The patient had a past medical history of type 2 diabetes mellitus on insulin, rheumatoid arthritis, gout, and had a mitral valve replacement 10 years ago. She had just completed a three week course of intravenous vancomycin for enterococcal endocarditis. Her laboratory values on admission were: Sodium 137, Potassium 4.7, Chloride 92, Bicarbonate 33, BUN 58, Creatinine1.9, Glucose 198, Alkaline Phosphatase 119 (normal range:20 – 120), Parathyroid hormone 144 (normal

range:10 – 60), Calcium 8.9 (corrected for albumin), Phosphorus 3.2, and CaxP = 28.48mg/dl. Her skin lesions started as intensely painful, violaceous, nodules that progressed to frank non-healing cutaneous ulcerations with black eschar formation. Blood cultures and wound cultures were unremarkable, as were Doppler studies to assess arterial flow. The patient was empirically started on broad spectrum antibiotics for presumed embolic phenomenon secondary to bacterial endocarditis (although a transesophageal echocardiogram was unremarkable). The patient's condition deteriorated. A full thickness skin biopsy was performed. The biopsy results showed intimal hyperplasia with medial calcification of the small arteries and recanalized thrombi: findings consistent with calciphylaxis.
DISCUSSION: Calciphylaxis is a rare life-threatening disorder whose pathogenesis remains unclear. It has been reported to occur in 1% of patients with end stage renal disease, and is usually associated with significant mortality often due to local infection and associated sepsis. Factors that have been implicated in its causation include: elevated parathyroid hormone, calcium-phosphorus product greater than 70mg/dl, dialysis, clotting abnormalities, use of parenteral iron, etc. Definitive causal relationship to each of these factors remains to be proven. Prompt recognition of this life-threatening disorder is crucial to ensure early initiation of treatment and to enable a cost-effective evaluation. This case report underscores the importance of considering calciphylaxis in the fore of common clinical features-even in the absence of end stage renal disease.

### A CASE OF MYOCARDIAL INFARCTION FROM SPONTANEOUS CORONARY ARTERY DISSECTION.

E.A. Kio[1], S.B. Glick[2]; [1]Rush-Presbyterian-St. Luke''s Medical Center, Chicago, IL; [2]Cook County Hospital, Chicago, IL *(Tracking ID #52351)*

LEARNING OBJECTIVES: 1. Identify coronary artery dissection as a cause of myocardial infarction. 2. Recognize the risk factors for coronary artery dissection. 3. Describe the diagnosis and management of myocardial infarction caused by spontaneous coronary artery dissection.
CASE INFORMATION: A 41 year old woman presented to the ER with complaints of right sided chest pain that began at rest. The pain radiated to her right arm and jaw. It was exacerbated by exertion. There was associated nausea, dizziness and shortness of breath. The pain lasted 45 minutes. The patient had no significant past medical history. Her last pregnancy was 10 years prior. She had a history of tobacco use, but used no alcohol or other drugs. On examination, the blood pressure was 130/80 in both arms. The pulse was 50 – 80 / min. The physical examination was normal. The basic metabolic panel and complete blood count were remarkable for a white blood cell count = 14,300 with neutrophilia. The EKG revealed normal sinus rhythm with occasional premature ventricular complexes. A transthoracic echocardiogram showed lateral wall motion abnormalities and an ejection fraction = 45 – 50%. The patient was transferred to the coronary care unit and treated with beta-blockers, tirofiban, heparin and nitroglycerin. She was monitored with serial EKGs and cardiac enzymes. Troponin levels at 6 and 13 hours after symptom onset were 6.6 and 206. The patient underwent cardiac catheterization which showed a left main coronary artery dissection proceeding into the circumflex and left anterior descending arteries. The posterobasal sement was severely hypokinetic. The ejection fraction was 48%. The patient underwent emergent coronary bypass surgery. Biopsy of the aorta was normal. The patient was discharged home six days after admission. She continues to feel well.
DISCUSSION: Spontaneous coronary artery dissection is a rare cause of myocardial infarction. Approximately 150 cases have been reported in the literature. Lesions usually are left-sided and proximal. Affected patients are often younger than those with myocardial infarction due to atherosclerosis. Women are affected more often than men. Spontaneous coronary artery dissection is associated with pregnancy, oral contraceptive use, cocaine use, atherosclerosis, cystic medial necrosis and trauma. The condition is diagnosed by angiography. The management of spontaneous coronary artery dissection includes medical therapy, coronary artery stents and coronary artery bypass surgery. The mortality rate is high; many cases are diagnosed at autopsy.

### A CASE OF ACUTE URINARY RETENTION FROM VITAMIN B12 DEFICIENCY.

E. Kio[1], S. Glick[1]; [1]Cook County Hospital, Chicago, IL *(Tracking ID #52420)*

LEARNING OBJECTIVES: 1. Recognize B12 deficiency as a cause of acute urinary retention. 2. Diagnose B12 deficiency from its clinical and laboratory presentation. 3. Outline the management of urinary retention caused by B12 deficiency.
CASE INFORMATION: A 46 year-old woman presented to the hospital with lower abdominal pain and inability to void for two days. For the past year, the patient had noted progressive fatigue with weakness initially involving the lower extremities and eventually, the upper extremities. These symptoms were associated with numbness and paresthesias. She also had worsening ataxia over this period to the extent that she was unable to ambulate without assistance. In the six months preceding admission, she noted constipation and increasing difficulty passing urine without dysuria, urgency or incontinence. On examination, the patient had lower abdominal distention and tenderness. The bladder was palpable. Anal tone was normal; the anal wink was decreased. Neurological exam was remarkable for spastic quadriparesis, with clonus, positive Babinski sign, as well as absent vibratory and joint position sense to the knees. The remainder of the examination was unremarkable. The complete blood count showed: hemoglobin = 11.1 gm/dl, mean corpuscular volume = 103.8, reticulocyte count = 0.4% and lactate dehydrogenase = 878. The basic metabolic panel revealed blood urea nitrogen and creatinine levels of 103 mg/dl and 7.9 mg/dl respectively. The B12 level was 130 pg/ml; the folate level was normal. Serum anti-parietal cell antibody titers were elevated (> 1:160). Tests of thyroid and hepatic function were within normal limits with the exception of an albumin = 3.2 gm/dl. Magnetic resonance imaging of the spine and renal ultrasound were unremarkable. A urethral catheter was placed. 2.5 L of urine was obtained. The patient was hydrated and begun on daily intra-muscular vitamin B12 injections. On the third hospital day, the serum BUN and creatinine were 36 and 1.8 mg/dl. By the eighth hospital day, the patient was able to ambulate with a walker and required only intermittent urethral catheterization. She was discharged home. Two months after admission, the patient no longer required intermittent catheterization, patient's constipation had resolved and she was able to ambulate with a cane.
DISCUSSION: Vitamin B12 deficiency is a recognized cause of a myriad of neurological disorders. Disturbances in micturition are usually a late complication of the disease. Both urinary incontinence and retention have been described in these patients. Dextrusor/sphincter dysynergy and decreased bladder sensation have been reported as possible explanations for the latter. The diagnosis of urinary retention due to B12 deficiency is made by the associated clinical and laboratory findings after infectious, inflammatory, obstructive and neoplastic etiologies have been excluded. Replacement of vitamin B12 remains the mainstay of the therapy. The prognosis is inversely related to the duration of illness.

### LYME CARDITIS: AN IMPORTANT COMPLICATION OF A COMMON INFECTION.

J.D. Kirsch[1], S.W. Loecke[1], P.A. Schlesinger[1]; [1]Hennepin County Medical Center, Minneapolis, MN *(Tracking ID #52043)*

LEARNING OBJECTIVES: 1. Recognize Lyme carditis as an essentially clinical diagnosis. 2. Diagnose Lyme carditis by history and electrocardiographic findings. 3. Generate a differential diagnosis for myocarditis.
CASE INFORMATION: A 21 y.o. Caucasian Minnesota-born male took a 2 week summer camping and hiking trip in Northern Minnesota. Two days after returning, he awoke with fever, chills and sweats. After 2 weeks with mild symptoms, he developed a severe headache. At a local emergency department (ED), he was diagnosed with 'viral meningitis' and sent home. Over the next 4 days, he had progressive myalgias, arthralgias, anorexia and dyspnea on exertion. Eighteen days after the onset of symptoms, he had syncope. The paramedics found him diaphoretic with a pulse of 34. In the ED, he was found to be in 3rd degree heart block with multiple large central clearing rashes. He was treated with antibiotics and a transvenous pacemaker for presumed Lyme carditis and recovered completely. Lyme serologies returned positive following clinical resolution.
DISCUSSION: Lyme Disease is the most common U.S. vector-borne disease. This patient went through fairly typical stages of disseminated Lyme disease. If he had received antibiotics when he presented, having an ideal exposure history and clinical symptoms consistent with disseminated borreliosis, he may have averted a dangerous complication of Lyme disease. Carditis typically develops 3 – 5 weeks following initial infection, though it can be the presenting symptom. Manifestations are protean, but 3rd degree AV block is the most commonly reported. It is important for clinicians to realize that Lyme carditis is a clinical, rather than serologic diagnosis. The differential diagnosis can easily be narrowed with a good history. Deciding whom to treat for Lyme carditis should be based on risk factors, symptoms and physical findings (e.g. heart block). Serologic testing is neither fast nor sensitive enough to warrant withholding treatment if negative. Carditis is generally self-limited, progressing to complete recovery in 6 weeks. Persistence of conduction problems and fatalities are rare.

### EFFECTIVE USE OF RAPID ASSESSMENT INSTRUMENTS FOR DETECTION OF ALCOHOL ABUSE IN A GENERAL INTERNAL MEDICINE PRACTICE.

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LEARNING OBJECTIVES: 1) Effectively screen for the presence of alcohol use disorders in a primary care/general practice setting.
CASE INFORMATION: See discussion.
DISCUSSION: Description of Poster: Increasingly, primary care physicians are being called upon to screen patients for potentially pathological involvement with alcohol. While the 4 item CAGE (Mischke, & Venneri, 1987) is most commonly used, there are several other rapid assessment instrument which are appropriate for use in a general practice setting. This poster presentation outlines several options including the AUDIT, (Volk et al 1997) the S-MAST and B-MAST (Selzer, 1975). It includes guidelines for securing, administering, scoring and interpreting results. Volke, R.J. (1997). The alcohol use disorders identification test as a screen for at risk drinking in primary care patients of different racial/ethnic backgrounds. Addiction 92: 197 – 206. Selzer, M.L., Vinokur, A., & Rooijen, L. (1975). A self-administered Short Michigan Alcoholism Screening Test (SMAST). Journal of Studies on Alcohol 36, 117 – 126. Mischke, H.D., Venneri, R. (1987). Reliability and validity of the MAST, Mortimer-Filkins Questionnaire and CAGE in DWI assessment. Journal of Studies on Alcohol 48, 5, 492 – 501.

### A STRIKING PRESENTATION OF NEUROSYPHILIS IN AN IMMUNOCOMPETENT PATIENT.

P. Kloda[1], E.S. Safran[1], J.N. Wilson[1]; [1]Morehouse School of Medicine, Atlanta, GA *(Tracking ID #51973)*

LEARNING OBJECTIVES: 1. Identify the occurrence of Neurosyphilis in a HIV negative patient. 2. Recognize a wide range of neuropsychiatric symptomatology associated with Syphilis. 3. Recognize the need to treat and test for cure in patient with Neurosyphilis.
CASE INFORMATION: 36 years old black woman brought to hospital emergency room by her boyfriend for evaluation of altered mental status with abnormal gait worsening for last 6 months. The patient's only complaint was lower extremity weakness. Her vitals were within normal limits. On mental status exam, patient was found to be demented, oriented only to self, emotionally labile, and did not understand the nature of her disease. Her neurologic exam demonstrated diffuse tremulousness, myokimia, hyperreflexia, wide-based gait, and myoclonus without startle. A Head CT was obtained and revealed cerebral atrophy with hydrocephalus. Lumbar puncture was performed which showed WBCs of 93 and 42 in tubes 1 and 4 respectively with 92 % of lymphocytes in tube 1. In tube 2, there was a protein of 53 and glucose of 69. VDRL on spinal fluid was reactive with a titer of 16 and positive treponemal IgG antibodies. The patient's urine drug screen was negative for cocaine.
DISCUSSION: The patient's immune status was assessed as within normal limits by HIV test, T-cell subsets and serum IgA level. After one week of intravenous penicillin G, the patient was alert and oriented times three without myoclonus and with much improved gait. A follow-up lumbar puncture was performed on Day 13 of treatment and revealed a decrease of VDRL titer to 8. After completion of fourteen days of intravenous penicillin, the CT scan of the Head

showed that the hydrocephalus had resolved. Laboratory-confirmed Neurosyphilis can present with significant symptomatology that responds to IV Aqueous penicillin for 10 to 14 days according to CDC criteria. Even in a HIV negative patient, a wide spectrum of neurobehavioral findings such as wide-based gait, mood instability and dementia can be detected and successfully treated with IV penicillin. Similarly, before-and-after radiologic and laboratory findings were consistent with clinical signs of improvement.

**RHABDOMYOLYSIS: AN UNDER-RECOGNIZED FEATURE OF ANTICONVULSANT HYPERSENSITIVITY SYNDROME.** R. Ko[1], S. Frost[2]; [1]Midwestern University Arizona College of Osteopathic Medicine, Glendale, AZ; [2]Cleveland Clinic Foundation, Cleveland, OH *(Tracking ID #50672)*

LEARNING OBJECTIVES: 1) Diagnose rhabdomyolysis as a feature of anticonvulsant hypersensitivity syndrome (AHS). 2) Recognize that rhabdomyolysis related SGOT and SGPT elevation may be misinterpreted as AHS associated hepatitis. 3) Recognize that AHS associated renal failure may be due to myoglobinuria from rhabdomyolysis.
CASE INFORMATION: A 24-year-old man presented with malaise, muscle pain, rash, and fever for 3 days. Four weeks earlier he was hospitalized for heat stroke after collapsing with a seizure during competition in a triathlon. Mild rhabdomyolysis was suspected at that time due to a creatine kinase (CK) of 4652 U/L on admission that had fallen to 1918 U/L before discharge. He was prescribed phenytoin for seizure prophylaxis, which was his only medication upon presentation to our hospital. Physical exam revealed a toxic appearance; T = 38.9C; confluent, erythematous rash on chest and face; submandibular lymphadenopathy; and tender thigh muscles. Laboratory revealed normal serum chemistries and renal function, WBC = 5.83 without eosinophilia; CK = 20347 U/L; SGOT = 797 U/L; SGPT = 248 U/L; serum myoglobin = 817 ng/dl; phenytoin = 2.5 ug/ml; and negative urine toxicology. AHS was diagnosed and phenytoin was discontinued. The fever and rash resolved. Blood cultures were sterile. CK, SGOT, and SGPT improved coincident with resolution of muscle pain upon discharge 8 days after admission. Fourteen days later, the patient was well with CK, SGOT, and SGPT of 598 U/L, 76 U/l, and 131 U/L respectively.
DISCUSSION: Rhabdomyolysis in our patient is likely a manifestation of AHS. AHS is an uncommon, potentially fatal, multisystem disorder that occurs weeks to months after exposure to phenytoin, carbamazepine, or phenobarbitol. Our patient demonstrated the hallmark clinical features of fever, rash, and lymphadenopathy. Less common findings include hepatitis (which may persist for months), leukocytosis, lymphocytosis, eosinophilia, facial edema, myalgia, arthralgia, and pharyngitis. There are 4 reported cases of AHS related rhabdomyolysis. This implies a deceptively low prevalence, as there are many reports consistent with rhabdomyolysis that are referred to less specifically as "myositis" and "myopathy." Furthermore, cases of AHS associated renal failure of unclear etiology may have been unrecognized acute tubular necrosis due to rhabdomyolysis induced myoglobinuria. Given that liver injury is a more common feature of AHS, SGOT and SGPT elevations due to rhabdomyolysis may be misinterpreted as hepatitis. Unrecognized rhabdomyolysis is probably common and likely increases morbidity and mortality due to AHS. Rhabdomyolysis should be added to the list of common manifestations of AHS.

**DIAGNOSTIC DILEMMAS OF THYROID STORM.** S. Kolli[1]; [1]New York Methodist hospital, Brooklyn, NY *(Tracking ID #52228)*

LEARNING OBJECTIVES: Thyroid storm is rare, but life threatening. Early recognition and treatment are essential. We present an unusual case with atypical features and several complications, including hyperpyrexia, rhabdomyolysis, deep venous thrombosis, metabolic acidosis, reversible hepatic failure, and reversible cardiomyopathy.
CASE INFORMATION: A 62-year old woman with anxiety disorder presented to the emergency room for an acute anxiety attack. She also complained of diarrhea for two days and acute onset of palpitations, dyspnea and diaphoresis. She denied heat exposure, medication overdose, weight loss, and previous history of thyroid disease. Physical examination revealed a well-nourished, anxious woman. Temp: 106.4°F; Pulse:185/min (supraventricular tachycardia); BP: 90/60 mm Hg; respiratory rate 37/min; O2 saturation 89% on room air. She had increased bowel sounds, a fine resting tremor of the hands. However eye and thyroid examination were unremarkable. Laboratory data were remarkable for leukocytosis, increased anion gap metabolic acidosis, abnormal liver function and evidence of rhabdomyolysis. The patient was started on antibiotics, intravenous fluids and antipyretics with no improvement. Subsequently, transaminases were further elevated (AST-3415 U/L, ALT-3766 U/L) and she became very lethargic. All cultures remained negative. Blood and urine toxicology and hepatitis serology were negative. Thyroid function studies revealed TSH-0.003 uIU/mL, T4-17.9 ng/dL, FT4-4.99 ng/dL, T3-495 ng/dL. The diagnosis of thyroid storm was made. With treatment, heart rate, metabolic acidosis and laboratory values improved and later normalized. Serial echocardiograms showed reversible cardiomyopathy. Rapid recovery following initiation of antithyroid treatment suggests that thyroid storm was the primary etiology of the critical illness.
DISCUSSION: This case illustrates that patient with thyroid storm do not always show all of the expected findings and symptoms. They may not even appear to be overtly hyperthyroid. However, the lack of prior thyroid disease or obvious precipitating event does not preclude diagnosis. If suspected, treatment should not await laboratory confirmation.

**NO ADDED SALT: HYPONATREMIA IN ENDURANCE ATHLETES.** DE Krause[1]; [1]Beth Israel Deaconess Medical Center, Boston, MA *(Tracking ID #48459)*

LEARNING OBJECTIVES: 1) Increase awareness of hyponatremia in endurance athletes. 2) Discuss mechanisms, treatment, and prevention of exercise induced hyponatremia.
CASE INFORMATION: A healthy 30-year-old woman was evaluated for confusion, nausea, and vomiting. A few hours prior to presentation she had completed an eighty-mile bike ride in hot, humid weather. According to a friend, she consumed approximately two gallons of water during the ride and another two gallons within one hour of completing the ride. Soon thereafter she became lethargic, vomited, and was noted to have some "limb shaking". She was not taking any medications. Initial laboratory data revealed a serum sodium of 118 with a serum osmololity of 250. Urine sodium was 137 with a urine osmolality of 710. Creatine kinase (CK) was 1175. Renal function tests, head CT, and EKG were normal. She was treated with hypertonic saline. Her sodium rose to 147 over the first 48 hours and her mental status completely recovered. Subsequent renal function, serum sodium, and CK measurements have been normal.
DISCUSSION: Each year over 2 million people participate in endurance sporting events. It is estimated that 25% of athletes completing triathlons and 9% of athletes completing marathons are found to be hyponatremic. The risk of hyponatremia is associated with NSAID use before and during an event, event times of greater than four hours, and female sex. The cause of hyponatremia in endurance athletes is multifactorial and poorly understood. Sodium loss through sweating and fluid replacement with hypotonic solutions can lead to total body fluid excess. In addition, pain and stress cause a surge in antidiuretic hormone (ADH), increasing sodium loss in the urine. Exercise, as well as aggresive fluid ingestion, may trigger the release of atrial natriuretic factor (ANF), increasing sodium loss in the urine. Athletes that develop hyonatremia may not have normal renal function during the event. Catecholamine release can cause renal vasoconstriction leading to a decrease in GFR. Likewise, NSAID use may contribute to abnormal renal function by inhibiting prostaglandins, decreasing renal blood flow, and potentiating the effects of ADH. After completing an endurance event, blood flow to the gut increases leading to an increase in absorption of free water. Exercise induced hyponatremia should always be considered in the confused or collapsed endurance athlete. In order to treat this life threatening condition appropriately, it must be differentiated from heatstroke and deyhdration. Treatment consists of hypertonic saline and supportive care. Education of endurance athletes and event directors regarding appropriate fluid and electrolyte replacement is a critical part of preventing this life threatening condition.

**YOU ARE WHAT YOU EAT: A CASE OF MERCURY TOXICITY.** S.R. Kurup[1], R. Granieri[1], J. Akhtar[1]; [1]University of Pittsburgh, Pittsburgh, PA *(Tracking ID #51342)*

LEARNING OBJECTIVES: 1. To recognize the neurological manifestations of mercury toxicity. 2. To recognize the treatment of mercury toxicity.
CASE INFORMATION: A 58 year old male with no significant past medical history presented to the outpatient clinic for slowness and stiffness of 6 months duration. Physical examination was unremarkable except for the neurological examination which revealed cogwheel rigidity in the upper extremities and a slow, shuffling gait. The clinical examination was consistent with Parkinson's disease. However, a review of his dietary pattern revealed that he was on a high protein diet, eating fish at least 3 times daily. Subsequent testing revealed an elevated mercury level on hair analysis and a blood mercury level that was elevated at 71 micrograms/L (reference range: 0 – 13 micrograms/L). With resumption of a normal diet, the blood mercury level fell to 33 micrograms/L and there was marked improvement in his symptoms.
DISCUSSION: Besides its well known use as the medium in thermometers, mercury is also used for other medical and dental purposes and in common household appliances. The mercury that is found in the environment correlates to its use in a significant number of industrial processes. Mercury is released into the environment as air or water emissions. When released as a vapor, it will accumulate in the atmosphere and lead to contamination of organisms consecutively up the food chain. Therefore, larger animals and humans are at high risk for being exposed to a mercury burden many times that encountered in the environment. The effect of mercury on the nervous system has been documented for many decades. The parable of the "Mad Hatter" in Lewis Carroll's Alice in Wonderland invoked the risk that laborers encountered while working with mercury in the hat making process. There have been numerous epidemiological studies linking neurological symptoms with mercury exposure. The substantia nigra is a common area of mercury deposition, thereby denoting a direct link between the anatomic insult and clinical manifestations of Parkinson's disease. Chelating agents such as d-penicillamine are specific for the sulfhydryl group in mercury exposed tissue, allowing for binding and excretion of mercury. These agents are commonly used for the treatment of mercury intoxication. Studies have demonstrated that patients with Parkinsonian-type pathology had resolution of their symptoms with either removal of the offending agent, the administration of chelating agents, or both.

**BLUE IN THE FACE: A CASE OF AMIODARONE INDUCED SKIN TOXICITY.** S. Kurup[1], R. Granieri[1], A. Shalaby[1]; [1]University of Pittsburgh, Pittsburgh, PA *(Tracking ID #51344)*

LEARNING OBJECTIVES: 1. To recognize the use of amiodarone in the management of cardiac arrythmias. 2. To recognize the effect of amiodarone on skin pigmentation.
CASE INFORMATION: The patient is a 74 year old male with a past medical history significant for congestive heart failure, coronary artery disease, and atrial fibrillation (AF) who presented with a history of skin discoloration. The patient had been on multiple agents for control of his arrhythmia including verapamil, lopressor, and procainamide, all of which failed. The patient was subsequently placed on amiodarone 400mg PO QD. Approximately 4 months later, he began to experience a bluish-gray discoloration of his face which was painless. The patient denied having any pruritis, tenderness, new medications, or bleeding. The patient continued on the amiodarone for two years. He presented to his cardiologist who discontinued the amiodarone. He had a slow recovery of the hyperpigmentation. Further medical therapy was unsuccesful in controlling his atrial fibrillation and a pacemaker was finally placed. His facial hyperpigmentation slowly continues to resolve.
DISCUSSION: Amiodarone is a class III antiarrythmic agent used in the treatment of atrial fibrillation and other supraventricular tachycardias. The side effects of amiodarone include deleterious effects on the skin, thyroid gland, cornea, and liver. The dermatologic manifestations, including photosensitivity and discoloration in sun exposed areas, are particularly damaging from a cosmetic perspective. Abnormal photosensitivity develops in 75% of patients who are exposed to amiodarone for 4 consecutive months or a total dose exceeding 55 grams. Individuals who exceed this threshold but do not have clinical manifestations still have the histological changes of photosentivity. Light and electron microscopy demonstrate the presence of myelin-like bodies and electron-dense granules in cellular structures of the organs discussed above. These pigment granules are found primarily in

macrophages and fibroblasts. Myelin bodies were found to have a more sporadic distribution within non-exposed areas such as the gluteal region as opposed to a more uniform distribution in sun-exposed photosensitive and non-sensitive skin. Bleaching cream may be utilized to assist with amiodarone skin discoloration. However, cessation of the insulting agent will usually suffice in reversing the photosensitivity. This process usually takes up to 2 years but the reversal of the discoloration may take as long as 3 – 5 years. Patients who have undergone total reversal of the hyperpigmentation have done so because of fastidious avoidance of sun exposure.

**AN UNUSUAL CAUSE OF TRANSAMINITIS.** M.D. Landry[1], R.A. Alli[1]; [1]Tulane University School of Medicine, New Orleans, LA *(Tracking ID #51479)*

LEARNING OBJECTIVES: 1. Recognize the symptoms of the hempophagocytic syndrome. 2. Identify the inciting etiologies of the hemophagocytic syndrome.
CASE INFORMATION: A seventeen year-old woman presented with malaise, anasarca, fever and icterus. One week earlier, she complained of nausea, headache and emesis. She was admitted with a diagnosis of hepatitis. She had a temperature of 104°F, an erythematous oropharynx without exudates and a fine maculopapular rash. Laboratory studies revealed leukopenia and anemia. A rapid strep, Monospot, hepatitis panel and blood cultures were negative. Her bilirubin level was 25 mg/dL, ALT 585 U/L and AST 362 U/L. She subsequently developed right upper quadrant pain, progressive pancytopenia, renal and hepatic failure. A liver biopsy revealed acute hepatitis with massive necrosis and lymphocytic infiltrates. Her bone marrow was hypocellular with histiocytic hemophagocytosis. She was treated with etoposide and dexamethasone and her condition stabilized. Ten days later she redeveloped acute right upper quadrant pain, decreased mental status, hypotension and shock. Attempted resuscitation was unsuccessful.
DISCUSSION: Viral hepatitis is responsible for greater than ninety percent of hepatic injuries. Less common causes of transaminititis including hemophagocytic syndrome should be considered when routine diagnostic studies are negative. Hemophagocytic syndrome is a disorder of generalized histiocytic proliferation and marked hemophagocytosis. Clinical features include fever, malaise and myalgias. Hepatosplenomegaly, generalized lymphadenopathy, increased hepatic enzymes, coagulopathy and pancytopenia are common. Initially the bone marrow has a hypercellular appearance with few infiltrating histiocytes followed by a hypocellularity with increased histiocytes. Liver biopsy demonstrates portal infiltrates of lymphocytes, immunoblasts and histiocytes. Inciting agents include viruses, bacteria, fungi, mycobacteria, rickettsia, parasites and malignancies. There is no standardized treatment; mortality is greater than fifty percent.

**ANTERIOR CHAMBER MASSES: A TRIO OF POSSIBILITIES.** M.D. Landry[1], J.G. Wiese[1]; [1]Tulane University School of Medicine, New Orleans, LA *(Tracking ID #51582)*

LEARNING OBJECTIVES: 1. Recognize the causes of masses in the anterior ocular chamber. 2. Diagnose systemic sarcoidosis. 3. Identify the treatment of ophthalmic sarcoidosis.
CASE INFORMATION: A twenty-two year-old woman presented with three weeks of decreased visual acuity and a pink mass in her left eye. She reported swelling and tenderness of her parotid glands causing difficulty with mastication. There was associated arthralgias, malaise, a non-productive cough and dyspnea on exertion. She had lost fifty pounds over the previous three months. Her past history was significant for a right eye enucleation secondary to trauma, and a diagnosis of asthma. There was a 5 × 30 millimeter pink mass in the left anterior chamber, displacing the iris. Visual acuity in the left eye was 20/80. Her parotid glands were bilaterally swollen and tender. She had multiple tender joints with peri-articular swelling and decreased range of motion. The remainder of the examination was normal. Chest x-ray revealed bilateral hilar lymphadenopathy with patchy infiltrates in the lower lung fields. The calcium level was 9.5 mEq/l. Biopsies of the left eye mass and a cervical lymph node were obtained. The patient was started on systemic and opthalmic steroids.
DISCUSSION: Anterior chamber masses are caused by retinoblastoma, melanoma and sarcoidosis. The incidence of sarcoidosis is increased in African-American women between twenty and forty years of age; there is no increased predilection for ophthalmic involvement. Twenty-five percent of patients with sarcoidosis will have ophthalmologic complications, usually in the form of anterior uveitis. Other ophthalmologic manifestations include iridocyclitis, conjunctivitis and keratopathy. The easiest method of diagnosis is to search for more accessible tissue. Our patient was diagnosed with sarcoidosis on the basis of a lymph node biopsy. The majority of patients with sarcoidosis undergo spontaneous remission within two years of diagnosis, and do not require steroid therapy. Extra-pulmonary involvement of the eyes, brain, heart or joints, however, require steroid therapy.

**PNEUMOCYSTIS PNUEMONIA UNMASKED: THE DILEMA OF CHRONIC SUPPRESSIVE THERAPY IN A PRISONER WITH AIDS.** J.D. Lee[1]; [1]New York University, New York, NY *(Tracking ID #51554)*

LEARNING OBJECTIVES: 1) Recognize that prophylactic doses of atovaquone provide treatment of mild pneumocystis pneumonia and can delay a diagnosis of PCP in patients intermittently noncompliant with daily suppression, 2) Acknowledge the commonly uncoordinated patient care between the hospital and correctional settings.
CASE INFORMATION: A 42 year-old male prisoner presented on three separate occasions over a two month span with recurrent fevers. The patient's past medical history included HIV/AIDS (CD4 of 12, viral load >50k) and multiple pneumocystis and bacterial pneumonias. He was allergic to sulfa medications and took stavudine, lamivudine, efavirenz, and atovaquone, 1500mg daily. Initially the patient presented with facial cellulitis and was discharged to the jail's infirmary on IV nafcillin. The patient returned in one week with recurrent high fevers. Exam was notable for normal room air blood oxygen saturation, reduced facial pain and swelling, and clear lungs. CXR showed no infiltrate. A nafcillin-related allergy was suspected. The patient's HAART and atovaquone were continued, while the nafcillin was changed to azithromycin with immediate normalization of the patient's temperatures. The patient returned to jail, only to present again in four days with high fevers and a new complaint of dyspnea. The patient stated he had not received daily atovaquone at any time while in the jail's infirmary. Physical exam was now significant for a temperature of 38.0 C, respiratory rate of 24 and rales bilaterally. CXR showed bilateral diffuse infiltrates and a room air PO2 was 60 mm Hg. Treatment for PCP with IV pentamidine and steroids steadily improved the patient's condition. Upon final discharge to the jail's infirmary the necessity of daily pneumocystis prophylaxis was clearly transmitted to and acknowledged by the infirmary physicians, who stated atovaquone had been periodically unavailable.
DISCUSSION: Pneumocystis pneumonia is a common cause of fever in AIDS patients noncompliant with chronic suppressive therapy such as atovaquone, but is uncommonly present in patients on daily prophylaxis. A lack of communication between the hospital and correctional providers delayed recognition of intermittent atovaquone noncompliance and lowered the diagnostic suspicion of PCP upon the patient's second hospitalization. A mild case of PCP was likely missed but nonetheless treated with the 1500mg of daily atovaquone intended as prophylaxis, and the pneumonia worsened in severity with the prisoner's discharge and atovaquone's subsequent discontinuation. This dose of atovaquone was viewed as adequate primary PCP therapy prior to clinical trials that demonstrate the superiority of high-dose TMP/SMX.

**DIMORPHIC ANEMIA; CASE REPORT OF MASKED PERNICIOUS ANEMIA.** T. Legg-Jack[1], J. Yoe[1], C. Myers[1]; [1]North General Hospital, New York, NY *(Tracking ID #52265)*

LEARNING OBJECTIVES: Discuss simple cost effective way to unmask a hidden pernicious anemia and avert the neurological/neuropsychiatric complication of Vitamin B12 deficiency (Vit.B12).
CASE INFORMATION: 28 year old nulliparous African-American female with menorrheagia and fatigue. Physical exam was unremarkable, Laboratory assesment revealed microcytic hypochromic anemia with low ferrritin and transferrin saturation and elevated Total iron binding capacity(TIBC) in addition to decreased Vit.B12 in serum and positive intrinsic factor antibody.
DISCUSSION: Our case report emphasizes that in evaluating anemia, information provided by electronic particle counters reliable as it is should not be a substitute for a strong index of suspicion, a careful scrutiny of peripheral blood smear. Following standard algorithms foud in texts our hypochromic and microcytic anemic patient will not be tested for Vit.B12 and Folate levels. Attention to clinical history including risk factors and the presence of hypersegmented neutrophils in the peripheral smear will alert the clinician of possible megaloblastosis as a concomitant cause and the need to request Vit.B12 and Folate levels. Another pointer will be high Red Cell Distribution Width (RDW).

**INVESTIGATING A NURSING HOME DEATH: IMPLICATIONS FOR QUALITY IMPROVEMENT AND THE REGULATORY PROCESS.** E.C. Lindenberger[1], C. Harrington[1], M.A. Johnson[1], E. Pierluissi[1], C.S. Landefeld[1]; [1]University of California, San Francisco, San Francisco, CA *(Tracking ID #50258)*

LEARNING OBJECTIVES: 1) Through a critical case review, to determine the opinions of nursing home (NH) and quality improvement specialists regarding a recent NH case investigation; 2) To identify common systems failures that compromise quality NH care; 3) To explore the role of the current regulatory model in promoting quality care.
CASE INFORMATION: An 88-year-old man with dementia, COPD, schizophrenia, a history of multiple aspiration pneumonias, a gastric feeding tube, and functional dependence, had lived in the nursing home for > 5 years. On 3/10/01, nursing staff found him in respiratory distress and transferred him to the emergency department 6 hours later. Tube feeds were aspirated from his trachea, standard treatment was begun, and he died from aspiration pneumonia on the fifth hospital day. California state investigators found the NH failed to document the patient's respiratory treatments, vital signs, tube feedings, and general monitoring as outlined by his comprehensive care plan. The state judged that the NH failed to provide the necessary services to prevent aspiration pneumonia and that these lapses directly caused the patient's death (Type AA citation, $70,000 fine).
DISCUSSION: In our joint review of this case, we identified the following domains of potentially inadequate care: poor documentation, failure to follow physician orders, and delayed identification of the patient's respiratory distress. We also noted that nurse understaffing and inadequate training levels are important system-wide problems that may lead to such failures. Despite general agreement about areas of potentially compromised care, however, our opinions varied greatly regarding the impact of the facility's lapses on the patient's well-being. Reviewers more critical of the nursing facility emphasized that the staff's poor documentation illustrates a failure to monitor the patient adequately, which in turn placed him in immediate jeopardy. In contrast, reviewers more critical of the investigation challenged the assertion that the facility's lapses directly led to the patient's death. These reviewers believed that, in charging the facility with a Type AA citation, investigators did not adequately take into account the patient's underlying comorbidities that placed him at high risk for aspiration and death. Furthermore, they emphasized, there has been little research linking the types of deficiencies cited in this case with poor clinical outcomes. In summary, this case illustrates general agreement regarding important NH systems failures, such as nurse understaffing, inadequate nurse training, and poor documentation. However, our review also reveals large areas of disagreement and, in such, underscores the continued need for critical evaluation of methods to improve NH quality.

**BILATERAL ADRENAL HEMORRHAGE AS THE INITIAL PRESENTATION OF AN ANTIPHOSPHOLIPID SYNDROME.** R. Liu[1], P. Basaviah[1]; [1]University of California San Francisco, San Francisco, CA *(Tracking ID #52013)*

LEARNING OBJECTIVES: 1. Recognize the diversity of presentations of antiphospholipid syndromes. 2. Identify the antiphospholipid syndrome as a cause of hypoadrenalism.
CASE INFORMATION: A 30 year-old Russian male presented to the emergency room with severe non-remitting bilateral flank pain and fevers to 38.7°C for approximately one week after discharge from hospitalization for an emergent appendectomy. Exam revealed bilateral costovertebral tenderness and an appendectomy scar that was clean, dry and intact. The patient had normal bowel sounds and mild right upper quadrant (RUQ) tenderness but no guarding or

rebound was noted. His BP remained 120 – 130 systolic with a pulse of 100 – 110. CT of the abdomen and pelvis revealed bilateral adrenal hemorrhages. RUQ ultrasound (U/S) demonstrated fullness of the right adrenal gland, mild splenomegaly, and scarring of the lower pole of the left kidney consistent with remote vascular injury. Lower extremity U/S revealed focal, non-occlusive thrombus bilaterally in the proximal superficial femoral veins. Laboratory tests included a positive factor inhibitor screen, a positive Russell Viper Venom Test, and a positive anticardiolipin antibody test. His ANA, dsDNA, HBV and HCV were negative. His ACTH was 201 ng/L and his cortisol was <1 ug/dL. PT was 14.3 s, INR was 1.2 and PTT was 58.9 s. The patient was treated with lovenox overlapping with coumadin for anticoagulation and with hydrocortisone and florinef for adrenal support. After one week, he was completely asymptomatic and normotensive, without fevers or flank pain.
DISCUSSION: Although adrenal hemorrhage is classically seen in the setting of meningococcal septicemia, it has also been associated with a variety of other conditions, including the anti-phospholipid syndrome (aPL). The adrenal glands are particularly susceptible to infarct in the setting of a hypercoagulable state due to the unique nature of its vascular supply and drainage. It is supplied by three separate arteries with an abrupt transition from artery to capillary plexus. In addition, the adrenal vein is exposed to high concentrations of epinephrine, which is a stimulus for platelet aggregation. aPL may be idiopathic or may be associated with other conditions such as lupus, rheumatoid arthritis, systemic sclerosis, certain infections, and drug exposures. Corticosteroids have been beneficial to survival in patients with adrenal hemorrhage and aPL, although the optimal duration of treatment has not been determined. In patients with aPL who have multiple thrombotic events, long-term anticoagulation is often necessary.

**TO ERR IS STILL HUMAN . . . BUT THERE ARE LESSONS TO LEARN.**
M.L. Lypson[1]; [1]Veterans Administration Ann Arbor, University of Michigan, Ann Arbor, MI *(Tracking ID #51638)*

LEARNING OBJECTIVES: – Identify potential medical errors. – Analyze how potential systematic changes can prevent medication errors.
CASE INFORMATION: Cc: Lip Swelling HPI: Mr. C, a 31-year-old man presented to the ER at 6:30AM, end of the shift complaining of left lip and cheek swelling. He thought it was due to the recent intake of vitamins E and C, Echinacea and St. John's wart; none of which he had taken before. He denied fever, chills, hives, tongue swelling, difficulty breathing or wheezing or inability to handle his secretions. He had no known drug allergies and denied current smoking, alcohol or illicit drug use. The pertinent findings on exam were the absence of nasal septum or turbinate swelling, extensive left upper lip and buccal mucosal swelling & erythema, no swelling of the oral pharynx, the tongue was symmetric and without swelling. His trachea was midline & lungs were clear to auscultation bilaterally; cardiovascular exam demonstrated normal rate & rhythm without murmurs or rubs. Orders were hand written for the patient to receive: methylprednisolone 125 mg intravenously (IV), diphenhydramine 25mg IV, famotidine 20 mg IV, and 1:1000 concentration of epinephrine subcutaneously (SC). The patient received the methylprednisolone IV followed by epinephrine which was administered intravenously rather than subcutaneously. The patient then demonstrated a rapid heart rate, then rapid atrial fibrillation, with ST segment elevation. Systolic blood pressures were in the 190's and diastolic in the 100's. The patient's hemodynamic picture remained this way for 5 – 7 minutes; follow up electrocardiograms demonstrated atrial fibrillation with a ventricular response of 120 – 130. Cardiac enzymes were drawn and he was admitted for observation. Persistent atrial fibrillation for greater than 24 hours led the cardiology consult service to electrically convert him into sinus rhythm with 100 joules. Obtaining an incident report from the professionals involved was quite difficult and the matter did not seem to cause any alarm with supervisors.
DISCUSSION: The IOM report, To Err is Human: Building a Safer Health Care System still rings true. The report estimated that 44,000 – 98,000 deaths/year are due to medical related errors. 777,000 patients/year are injured or die in the hospital due to adverse drug events. The principal types of adverse events are medication errors that include missed doses, the incorrect doses and the wrong route (a). Medication errors are problems of the ordering process, transcription, dispensing, administering, or monitoring. In this case there were several opportunities to prevent this adverse event. These include: 1) unit-dose distribution, 2) automated dispensing devices, 3) computerized order entry, 4) incident reporting, 5) improved information transfer, 6) provider fatigue and 7) providing a culture that champions safety. Understanding ways to address medical errors and recognize them in general practice will improve patient outcomes. Reference: (a) Making Health Care Safer: A Critical Analysis of Patient Safety Practices, AHRQ # 01-E058 (ACCESSED 2002, January 8) Available from: URL: http://www.ahrq.gov/clinic/ptsafety/

**SAME BLOKE, DIFFERENT STROKES: COMPLICATIONS OF INFECTIVE ENDOCARDITIS.**
M.K. Malhotra[1]; [1]Cook County Hospital, Chicago, IL *(Tracking ID #52407)*

LEARNING OBJECTIVES: 1. Recognizing alarm symptoms complicating infective endocarditis that suggest mycotic aneurysms. 2. Assess need for surgical intervention for intracranial mycotic aneurysms.
CASE INFORMATION: a 45-year old intravenous drug user was being treated with intravenous antibiotics for mitral valve infective endocarditis(ie). Physical examination revealed expressive aphasia and right sided hemiparesis and cortical sensory loss. Ct-scan of the head showed low attenuation area involving the basal ganglia and temporo-parietal region on the left side consistent with cerebral infarction. Trans-thoracic echocardiogram revealed a 1.8 cm vegetation over anterior mitral leaflet. Blood cultures were positive for streptococcus viridans. Five days later while on treatment, patient c/o headache and had a generalized seizure. Repeat ct-scan of the head showed multiple new peripheral infarcts and intraventricular hemorrhage. Cerebral angiography done thereafter, showed abrupt cutoff of the middle cerebral artery at the level of the genu with retrograde filling of the distal mca branches. Three aneurysms were described; two in the posterior communicating artery, and one in the anterior cerebral artery distribution. The locations and the appearences were typical for intracranial mycotic aneurysms(ima). Medical treatment was continued.
DISCUSSION: neurologic complications occur in about 35% of cases of ie. However, ima are rare. In a large clinical series of patients with ie(hart et al, stroke 1987), ima accounted for only about 0.3 – 1.8% of cerebrovascular complications. In a patient with ie, new onset of headache, neurologic deficit or seizures is ominous, and warrants further investigation. Ct-scan findings of a peripheral location of intracerebral hemorrhage, or subarachnoid or intraventricular hemorrhage should lead to cerebral angiography in search of ima. Most common sites are the bifurcation of distal branches of intracerebral arteries. Surgical intervention is indicated for single, accessible, enlarging ima with signs of leakage. Multiple ima are managed medically. Mortality associated with ruptured ima is about 80%.

**A COOL HAND AND AN IRREGULAR HEART RATE.**
A.M. Mallouk[1], M.N. Phan[1], S. Wali[1]; [1]UCLA San Fernando Valley Program, Sepulveda, CA *(Tracking ID #50261)*

LEARNING OBJECTIVES: 1. Review common and uncommon presentations of atrial fibrillation (AF). 2. Emphasize the importance of a thorough physical examination in the evaluation of patients with AF.
CASE INFORMATION: A 76-year-old man with a history of myocardial infarction (MI) and angioplasty presented with pain in his right forearm. The pain started suddenly 9 hours prior to visit, peaked 2 hours later, then diminished. He denied trauma, neck pain, or focal neurologic symtoms. Three days prior to visit, he had an episode of left-sided, dull chest pain lasting one day, and resolving on its own. There was no shortness of breath, nausea, or diaphoresis. The patient took no medications and did not smoke or drink. On exam he appeared well, BP 158/78, P 62, T 96.5, and RR 18. Heart rate was irregularly irregular and lungs were clear. Extremities showed a cool, pale right hand with no radial pulse and a normal left radial pulse. Dorsalis pedis pulses were normal bilaterally. Neurological examination showed no deficits. EKG showed AF, at a rate of 70, ST elevations in V2 – V6, and Q waves in V4-V6. Cardiac enzymes were positive. The patient was admitted with acute coronary syndrome, and AF with possible embolization. An angiogram later showed a thrombus in the right brachial artery. A thrombectomy resulted in a return of his right radial pulse. The patient was discharged home on warfarin.
DISCUSSION: Atrial fibrillation is a relatively common arrhythmia that should be suspected whenever the physical examination reveals an irregular pulse. Our case demonstrates the importance of a complete physical examination. Most patients with recent onset AF present with symptoms related to the arrhythmia such as palpitations, lightheadedness or shortness of breath. Occasionally, more severe symptoms include angina, hypotension, presyncope, syncope or, as in this case, signs and symptoms of embolization. Most embolizations are to the central nervous system, lungs or lower extremities. Here, a careful physical examination revealed a rare upper extremity embolization.

**HYPEREMESIS GRAVIDARUM: A COMPLICATION AND ITS COMPLICATIONS.**
U. Mandhare[1], D. Whitehead[2], L. Orlando[3]; [1]Tulane School of Medicine, New Orleans, LA; [2]Tulane School of Medicine, Dept. of Internal Medicine, New Orleans, LA; [3]Tulane University, New Orleans, LA *(Tracking ID #51913)*

LEARNING OBJECTIVES: 1. Recognize the differential diagnosis of an anion gap acidosis in hyperemesis gravidarum and hyperglycemia. 2. Distinguish gestational diabetes complicated by starvation ketosis from diabetic ketoacidosis.
CASE INFORMATION: A 22 year old pregnant woman with a twin gestation and single intrauterine fetal demise presented to the emergency room at 18 3/7 weeks with dyspnea, abdominal pain and vomiting, two days after successful inpatient treatment of hyperemesis gravidarum. The abdominal pain and dyspnea, which were not associated with eating or position, started the day after discharge. She had no medical history and denied alcohol or illicit drug use. On physical, she had a pulse of 118, Kussmaul's breathing, drowsy mental status, and mild abdominal tenderness. The rest of her exam, including the pelvic, was noncontributory. Laboratory results revealed an anion gap acidosis, glucose 178 mg/dL, glycosuria and ketonuria. An ABG confirmed the presence of a primary metabolic acidosis.
DISCUSSION: Ketoacidosis during pregnancy is a manifestation of diabetes (DKA), alcoholism (AKA), or severe starvation. Our patient's hyperglycemia indicated that she had either a previously undiagnosed type two diabetes or gestational diabetes, neither of which are normally associated with DKA. AKA, which relies upon glucose starvation and a relatively insulinopenic state to promote ketogenesis, is defined by the absence of glycosuria and the presence of hyperglycemia. However, severe starvation can mimic AKA, if associated with sympathetic hyperstimulation, a process which increases insulin resistance. In our patient the combination of protracted emesis, gestational diabetes and intrauterine demise prompted ketogenesis despite only mild hyperglycemia. After hydration, her acidosis resolved along with her symptoms. Patients with gestational diabetes and complications may need close monitoring for glucose repletion if starvation ketosis is suspected.

**PIGMENT INDUCED RENAL FAILURE IN HUMAN GRANULOCYTIC EHRLICHIOSIS.**
S. Manickaratnam[1]; [1]University of Connecticut, Hartford, CT *(Tracking ID #52405)*

LEARNING OBJECTIVES: 1. Ehrlichiosis is a potentially curable disease which should be considered in the differential diagnosis of thrombotic microangiopathic disorders especially in regions where the incidence of tick-borne illness is high. 2. Pigment induced ATN is a serious complication of severe hemolysis.
CASE INFORMATION: A 48 year-old lady presented with symptoms of abdominal pain, diarrhea, fever and decreased urine output for a few days. She had no significant past medical history and was not on any medications. She had no history of travel, tick-bites or exposure to pets. She was febrile(103F), appeared ill, jaundiced and had several petichae over her neck and axilla. She had tenderness in the left costo-vertebral angle.
Investigations revealed WBC-24,000/cu.mm (66% polymorphs, 25% bands, 2% lymphocytes), platelets-52 and occasional schistocytes.Total bilirubin-9.8, direct bilirubin-2.2, AST-396, ALT-84, Alk.phos-109, LDH-1975, CK-140. BUN-26 and Creatinine-2.6. PT-17.4 secs, PTT-35.8secs, TT-27secs, D-dimer >4, fibrinogen-22. Urinalysis: positive for hemoglobin

and proteins. CT abdomen revealed a left renal stone with perinephric strands and no evidence of abcess. She was empirically started on broad spectrum antibiotics. She remained febrile and her renal function deteriorated further. The thrombocytopenia and abnormal liver tests persisted. The peripheral blood smear was re-evaluated and was reported to have 'granulocytic inclusion bodies' highly suggestive of Ehrlichia. The antibiotics were changed to doxycycline. She showed clinical improvement, her platelets and coagulation tests also retuned to normal. Yet her renal function deteriorated (creatinine-11.3) and bilirubin was >20. Over the next two weeks her renal function gradually recoverd without any need for hemodialysis.
One month after hospitalisation her serum was positive at 1:64 for IgG Ab to Ehrlichia. At follow-up her platelets, liver enzymes and renal function have remained stable.
DISCUSSION: Ehrlichiosis is a tick-borne disease caused by rickettsial organisms of the genus Ehrlichia. There are two distinct forms of illness: Human granulocytic ehrlichiosis (HGE) and human monocytic ehrlichiosis (HME). Ehrlichiosis generally presents with fever, headache, myalgia, thrombocytopenia, leukopenia and elevated liver enzymes.The diagnosis is by peripheral smear and Indirect flourescent antibody assay (IFA). The treatment of choice is tetracycline.
The patient desribed here presented with fever, acute reanl failure, thrombocytopenia and fragmented red cells on peripheral smear — mimicking TTP. Apart from TTP there are other diseases that need to be considered in the differential diagnosis, which include rocky-mountain spotted fever, infectious mononucleosis, leptospirosis and array of other viral illnesses.
The interesting aspect of this case was the worsening renal failure with increase in bilirubin when all other laboratory tests returned to normal.To summarise, HGE can lead to hemolysis and pigment induced acute tubular necrosis.

**THE HEART-BRAIN CONNECTION: A CASE OF MYOCARDIAL DAMAGE FROM CEREBRAL AMYLOID ANGIOPATHY.** A. Manini[1], T.E. Baudendistel[1], J. Zaroff[1]; [1]University of California, San Francisco, San Francisco, CA *(Tracking ID #51983)*

LEARNING OBJECTIVES: 1. Diagnose neurally-mediated cardiac injury based on its clinical, echocardiographic, and ECG findings. 2. Outline the pathophysiolgic links between cerebral amyloid angiopathy, subarachnoid hemorrhage, and subsequent left ventricular systolic dysfunction.
CASE INFORMATION: FT is a 79 year-old man without prior cardiac disease who was brought to the ED after several days of worsening dyspnea and orthopnea, associated with headache and lightheadedness, but without chest pain. Three months prior, he had undergone operative evacuation of a subarachnoid hemorrhage (SAH), at which time brain MRI and intraoperative biopsy revealed the presence of cerebral amyloid angiopathy (CAA). In the ED, he was normotensive and in heart failure. ECG demonstrated deep, symmetric T-wave inversions not seen on an ECG three months earlier. Serial cardiac enzymes were negative, and echocardiography demonstrated new LV systolic wall motion abnormalities in a pattern typical of neurally-mediated cardiac injury. Lumbar puncture revealed no xanthochromia or blood, and repeat brain MRI demonstrated no hemorrhage; however, the previously seen amyloid plaques had progressed markedly. The patient improved and was discharged with a diagnosis of neurally-mediated cardiac injury due to progressive CAA.
DISCUSSION: CAA is a common but less considered cause of intracranial hemorrhage in the normotensive elderly. Pathologically, amyloid deposits in cerebral vessels cause weakening and subsequent hemorrhage. There is no association with systemic amyloidosis, and no treatment is yet known to reverse CAA.
Neurally-mediated ECG changes similar to those of our patient have been well described with an incidence of 25 – 75% in SAH patients. More recently, echocardiographic changes have been characterized following CNS injury, with global LV systolic dysfunction in a distribution that does not match a coronary artery territory. These ECG and echocardiographic changes are thought to relate to markedly increased sympathetic output in the setting of the acute cerebrovascular event: local myocardial catecholamine excess causes subendocardial hemorrhage and contraction band necrosis. Agents that block alpha and beta adrenergic receptors, such as phentolamine and propranolol, have been shown in small studies to improve ECG abnormalities and contraction band necrosis following SAH.
Our patient had ECG and echocardiographic changes characteristic of neurally-mediated cardiac injury, but not previously described as sequelae of progressive, biopsy-proven CAA. Once an acute coronary syndrome has been excluded, CNS causes of myocardial dysfunction should be considered. The relationship between SAH-induced LV dysfunction and long term clinical outcome remains unexplored.

**AN OCCULT SOURCE OF SEPTICEMIA.** M.S. Marcu[1], E. Elbadawy[1], K.V. Gopal[1]; [1]Fairview Hospital, Cleveland, OH *(Tracking ID #51667)*

LEARNING OBJECTIVES: 1) To recognize splenic abscess as a hidden cause of sepsis in critically ill patients. 2) To recognize splenic abscess as a possible diagnosis in a patient with fever, abdominal pain and history of intravenous drug abuse.
CASE INFORMATION: A 48-year-old white male with history of drug abuse presented with generalized weakness, cough, fever, diarrhea and abdominal pain. The patient was diagnosed with Pseudomonas pneumonia and treated accordingly with piperacillin/tazobactam, as well as with metronidazole for hospital acquired Clostridium Dificille colitis. He had a long hospital course which was complicated with vancomycin resistant Enterococcus septicemia. Therapy was instituted with quinupristin/dalfopristin for 15 days followed by linezolid for 25 days. The patient had persistent positive blood cultures for Enterococcus despite therapy. Repeated transesophageal echocardiographies failed to identify endocarditis as a cause of persistent septicemia. An abdominal CT scan was performed and revealed an 8 cm splenic abscess. The patient underwent exploratory laparotomy followed by open drainage and splenectomy. He expired postoperative day 2. Cultures obtained from the abscess were negative for bacterial and fungal pathogens.
DISCUSSION: Splenic abscess is a rare entity associated with septicemic conditions, with reported frequency in autopsy series between 0.14 and 0.7%. Recognized risk factors as immunosupressed states, intravenous drug use and acquired immunodeficiency syndrome have changed the disease pattern and the demographics of the patient population. In reported patients, blood cultures were positive in 48.2% with 23.6% having an organism similar to that obtained from the abscess, with significant proportion of dissimilar organisms cultured from blood and abscess. Sterile abscesses have been reported similar to our case due to extended antibiotic therapy. Timely identification of condition is important since appropriate antibiotic treatment and splenectomy are life saving.

**A LIFESAVING DIAGNOSIS FROM A COMMON CLINICAL COMPLAINT.** J. Marina[1], D. Whitehead[1], L. Orlando[1]; [1]Tulane University, New Orleans, LA *(Tracking ID #51662)*

LEARNING OBJECTIVES: 1. Recognize Brugada Syndrome 2. Identify risk factors for poor outcome in young adults with syncope.
CASE INFORMATION: A 24 year-old man presented to the hospital with dizziness after standing and a syncopal episode two weeks prior to admission. He denied palpitations, chest pain, vertigo, or dyspnea. He had no past medical history; but his father died from sudden cardiac arrest at the age of 43. The physical exam was normal. An electrocardiogram revealed a right bundle branch block and ST segment elevation in the anterior precordial leads. He had a normal ejection fraction on echocardiogram. An electrophysiology study and tilt table testing were normal. A flecainide provocation test failed to elicit any abnormalities.
DISCUSSION: The Brugada Syndrome is characterized by right bundle branch block and ST segment elevation of the right precordial leads in the absence of structural heart disease. The disease is due to an autosomal dominant gene mutation of sodium channels. It has variable penetrance, and presents clinically with ventricular arrhythmias and sudden death. The arrhythmias are exacerbated by sodium channel antagonists. Because anti-arrhythmic therapy is not protective, automatic intra-cardiac defibrillators are first line therapy. Prompt and accurate diagnosis of the syndrome may be lifesaving as the mortality is ten percent per year. Our patient received an automatic defibrillator that subsequently identified and cardioverted an episode of ventricular fibrillation. Identification of Brugada syndrome depends on appropriate clinical suspicion and careful interpretation of the electrocardiogram.

**RECURRENT ABDOMINAL PAIN AFTER AN EPISODE OF ACUTE HEPATITIS A.** J. Marina[1], A. Zemsky[1], L. Orlando[1]; [1]Tulane University, New Orleans, LA *(Tracking ID #51673)*

LEARNING OBJECTIVES: 1. Diagnose and manage Relapsing Hepatitis A 2. Identify atypical features of Relapsing Hepatitis A.
CASE INFORMATION: A 47 year-old Honduran woman presented to our hospital with jaundice and elevated transaminases. Two months prior, an episode of acute Hepatitis A, contracted through contaminated water, caused jaundice, transaminitis and fatigue which completely resolved both symtomatically and biochemically. This admit, she presented with one week of similar symptoms despite no new exposure. She denied fever, alcohol, or toxic exposures. On physical, abnormal findings included pulse 142, icteric sclera, and tender liver of normal proportions; otherwise her exam was noncontributory. Laboratory studies revealed an elevated white cell count, transaminases ~380 u/L, total bilirubin 28 mg/dL with direct 5.1 mg/dL, and mildly increased coagulation profile. The previous exposure to hepatitis A was confirmed with an elevated IgG, while other hepatitis serologies were nonreactive. In addition, a liver ultrasound and biopsy confirmed the diagnosis of hepatitis A.
DISCUSSION: The presentation of acute Hepatitis A infection followed by recovery and then reoccurrence of a similar clinical picture is classic for relapsing hepatitis A. Occurring in ~10% of those with acute hepatitis A, the key to diagnosis is the clinical and biochemical similarity between the two episodes, and a lack of evidence to support another disorder. In our patient a thorough examination for other diseases, including liver biopsy, failed to identify another cause. The course typically resolves over 4 – 15 weeks with only supportive therapy without residual defects. After discharge our patient had no further complications, ultimately returning to her normal state of health.

**HAND BULLAE IN AN OLDER MALE.** M. Martinez[1], L. Lu[1]; [1]Baylor College of Medicine, Houston, TX *(Tracking ID #52033)*

LEARNING OBJECTIVES: 1) Construct a differential diagnosis for vesicles/bullae of the extremities. 2) Review the etiology, presentation, and management for Porphyria Cutanea Tarda.
CASE INFORMATION: A 62 year old white male with a history of Diabetes Mellitus and Chronic Renal Insufficiency presented to our outpatient clinic complaining of painful blisters on both hands for one week. The blisters began as small, clear-fluid filled vesicles that grew in size and eventually ruptured. He denied any recent fever, pruritis, ethanol use, increased sun exposure, medication or skin care product changes, previous similar blisters or other cutaneous lesions. He reported recent excessive facial hair growth and hyperpigmentation of both hands. On exam, the patient had a 1-cm bulla with clear fluid on the right index finger, a crusted circular area on the right thumb, and one vesicle on the left thumb without surrounding erythema, warmth, edema or exudate. Labs were remarkable only for elevated urine porphyrins at 60 mg/24h (normal range 8 – 44). The patient was subsequently diagnosed with Porphyria Cutanea Tarda (PCT) and treated with hydroxychloroquine.
DISCUSSION: The differential diagnosis of vesicles/bullae includes primary cutaneous disorders such as burns, contact dermatitis, erythema multiforme, herpes zoster, and secondary cutaneous disorders including pseudoporphyria and PCT. PCT must be considered in the differential diagnosis of any bullous lesions occurring in sun-exposed and trauma prone areas with fragile skin such as the dorsum of the hands and fingers. Possible associated symptoms include excessive facial hair growth and pigmentation changes in sun-exposed areas. Diagnosis is confirmed by finding elevated urine porphyrin levels secondary to decreased uroporphyrinogen decarboxylase activity. Precipitating factors include ethanol, iron,

estrogen, and hepatitis C infection. Treatment includes phlebotomy for decreasing iron stores, chloroquine or hydroxychloroquine.

**MUSCLE ACHES AND BODY SWELLING IN A YOUNG WOMAN.** D.J. Mcadams[1]; [1]University of Pittsburgh, Pittsburgh, PA *(Tracking ID #46563)*

LEARNING OBJECTIVES: 1. Recognize myopathy as an initial presentation of hypothyroidism. 2. Diagnose Hoffmann's syndrome.
CASE INFORMATION: S.G. is a 33 year old female with no significant past medical history who presented with complaints of generalized body aches and swelling for several weeks. Additionally, she had been having malaise, fatigue, paresthesias of her lower extremities, and a feeling that her skin was "too tight." She felt as if her clothes and jewlery did not fit because of "swollen skin." She specifically denies any sick contacts, joint pain or swelling, rash, or HIV risk factors. On physical exam, the patient had a round, "puffy" appearance to her face, and tenderness was elicited in most muscle groups. Her upper and lower extremity muscle bulk was increased symmetrically. Neurologically, she had delayed deep tendon reflexes, and her strength was diffusely decreased in all muscle groups at 4/5. Laboratory studies were significant for a TSH of 326 and CPK of 579. A diagnosis of hypothyroid myopathy was made, and the patient was started on thyroid hormone replacement. She had relief of her symptoms over the course of a few weeks.
DISCUSSION: Hypothyroidism is a common medical disorder with quite variable presenting symptoms. The most common complaints relate to fatigue, cold intolerance, constipation, carpal tunnel disease, and, in women, altered menstruation. In addition, patients often have muscle complaints including muscle cramps, pain, and stiffness. The most common manifestation is that of myalgias without CPK elevation. Isolated proximal myopathy and rhabdomyolysis have also been documented. The aforementioned case demonstrates Hoffmann's syndrome, defined as hypothyroidism with associated diffuse muscle hypertrophy, stiffness, weakness, and painful muscle cramps, as well as elevated CPK levels. When present, Hoffmann's syndrome is most often found in patients with long-standing thyroid disease. Symptoms are thought to be secondary to an increase in slow myofibrillar proteins, alterations in the myosin composition of myofibrils, and alterations in muscle energy production secondary to lack of thyroid hormorne. The cause of the muscle hypertrophy in Hoffmann's syndrome is unknown. Treatment of the disorder with thyroid hormone replacement generally resolves most of the symptoms in a few weeks, however muscle hypertrophy resolves over the course of a few months.

**CHRONIC PELVIC PAIN AND A HISTORY OF SEXUAL ABUSE ... IS THERE AN ASSOCIATION?** J.M. Mcassey[1], P. Hayes[2]; [1]University of Pittsburgh, Pittsburgh, PA; [2]Department of Veterans' Affairs; VA Pittsburgh Health Care System, Pittsburgh, PA *(Tracking ID #50398)*

LEARNING OBJECTIVES: 1. To identify the prevalence of sexual abuse during childhood and adulthood in women. 2. To recognize the association between sexual abuse and chronic pelvic pain in a primary care setting.
CASE INFORMATION: Ms. PP is a 22yo female, Gravida 0 Para 0, who was referred to Women's Clinic after visiting the emergency room with complaints of recurrent left lower quadrant pain. Previous work-up included an abdominal CT scan, colonoscopy, EGD and small bowel follow through, all of which were normal. Ms. PP reports that the pain is constant, and increases in severity with bending down and during sexual intercourse. The remainder of systems are normal. She reports the pain is not related to her menstrual cycles, which are unremarkable. She denies any vaginal discharge. Her past medical history is significant for migraine headaches, major depression (prior hospitalization), and irritable bowel symptoms. She currently takes 2 tablets daily of oxycodone/acetomainophen. She has had 3 lifetime male sexual partners, with 1 currently. She denies any episodes of current or prior sexual or physical abuse. On physical exam, she appears healthy, yet upset about her pain. Her abdominal exam revealed soft, slightly tender in the left lower quadrant, yet no rebound or guarding. On bimanual examination, she was quite tender over her left adenexa, with no cervical motion tenderness and no masses palpable. The rest of the physical examination was normal. Laboratory data included a normal TSH, negative beta-HCG, and a normal CBC, as well as normal pap and negative cultures. Over the next few months, Ms. PP continued to suffer with intractable pain. She was referred to a psychologist for coping with the pain. After 1 1/2 years of treatment, Ms. PP revealed to her psychologist that she had been sexually abused as a child. She had not mentioned this before because of "shame and embarassment". After this disclosure, her pain slowly became less intense and not her sole focus.
DISCUSSION: Chronic pelvic pain accounts for >25% of all gynecologic visits. Many studies have suggested an association between chronic pelvic pain and histories of sexual abuse, although most sample patients in specialty pain clinics. In a study of primary care offices, women answered questions specific for adult and/or child sexual abuse. The reported incidences of childhood and adult sexual abuse were 26% and 28% respectively. Women with a history of both childhood and adult sexual abuse were more likely to have chronic pelvic pain. Sexual abuse victims are also more likely to multiple somatic complaints: irritable bowel syndrome, migraine headaches, dyspareunia, and other pain syndromes. It is extremely common for women to deny any abuse, both sexual and physical, when asked. Questions regarding abuse should be repeated at follow-up visits regardless of her first answer. As this case shows, disclosure takes patience and trust.

**48 YEAR OLD HIV NEGATIVE FEMALE WITH HISTORY OF POSITIVE PPD, PRESENTS WITH A PERICARDIAL EFFUSION.** M. Mehmoob[1], D.M. Elnicki[1]; [1]University of Pittsburgh-Shadyside, Pittsburgh, PA *(Tracking ID #52546)*

LEARNING OBJECTIVES: 1. Optimize management of patients with a positive PPD. 2. Recognize complications of untreated tuberculosis (TB). 3. Minimize time required to confidently diagnose TB.
CASE INFORMATION: A 48 year old female presented with chest pain and dyspnea for 3 days, associated with fevers, chills and a dry cough. Two months prior to presentation, the patient was incarcerated and at that time had an untreated reactive PPD (>20mm). A chest radiograph, done 1 month later upon release, revealed a left lobe infiltrate and hilar adenopathy. The patient was advised to follow up at the local clinic without counseling on TB. The patient presented 5 weeks later with the above symptoms. An echocardiogram revealed impending tamponade physiology, and a pericardiocentesis with subsequent pericardial window and lymph node biopsy was performed. Acid fast bacilli (AFB) were not isolated from the pericardial fluid or tissue. However, lymph node biopsy revealed necrotizing granulomas. The patient was discharged on a four-drug TB regimen. Three weeks later her pericardial fluid grew Mycobacterium tuberculosis.
DISCUSSION: If unrecognized or untreated, Tuberculosis can lead to significant morbidity and mortality. Two indications for treatment of acute TB are PPD> 10mm and resident of high risk congregate settings or> 15mm with no risk factors. She had presented to the ED with a Ghon complex, another indication for treatment. If untreated it can lead to restrictive pericarditis, which has a greater than 50% mortality. Sputum for AFB has a yield of less than 50%. The diagnostic yield of pericardiocentesis is widely variable (19% – 76%) and is proportional to the size of the effusion. Adenosine deaminase (ADA) levels >45 U/l in pleural fluid are 100% sensitive and 97% specific for TB. PCR of pericardial fluid is 97% accurate for the detection of TB. The results of both of these tests are available within 48 hours, as opposed to two weeks for culture results. Neither of these tests was performed in this patient. This patient was hospitalized 4 days for the results of the lymph node biopsy, which were not conclusive for TB. In conclusion, ADA levels and PCR of pleural and pericardial fluid should be done on any patient where TB is strongly suspected. This would lead to a decrease in diagnostic time with earlier implementation of therapy and would have both clinical and public health benefits.

**THE STORY OF A PLATELET MILLIONAIRE WHO COULDN'T SHOP.** R.J. Michael[1], J.Z. Engel[1]; [1]Vanderbilt University, Nashville, TN *(Tracking ID #51273)*

LEARNING OBJECTIVES: 1. Review the differential diagnosis of extreme thrombocytosis. 2. Recognize the need to evaluate the GI tract in patients with idiopathic iron-deficiency anemia.
CASE INFORMATION: A 63 y.o. WF without significant medical history presented to clinic with the chief complaint of "I cannot shop." She had 2 months of progressive weakness, fatigue, episodic (generally exertional) dyspnea, and dizziness. On review of symptoms, she had also lost 20 pounds in two months. She denied chest pain, palpitations, paroxysmal nocturnal dyspnea, orthopnea, peripheral edema, fever, chills, or night sweats. Her only medication was an 81 mg aspirin each day. She had a 40 year pack year history of cigarette use. On exam, she was afebrile, had a pulse of 78, a respiratory rate of 16, and a blood pressure of 130/80. She weighed 56 kg. She appeared "like death warmed over," but was very talkative. Her face was pale but the conjunctivae were pinkish. Cardiac exam revealed a II/VI systolic ejection murmur heard throughout the precordium. The abdominal exam was benign. Her stool was guaiac positive. The remaining exam was normal. Initial lab work showed a WBC of 14.7, an Hgb/Hct of 5.2/22, a MCV of 61, a platelet count of 1,138,000, and an unremarkable basic metabolic panel. Her peripheral smear showed microcytic, hypochromic RBCs. Further testing revealed an iron of 6, a TIBC of 402, and a ferritin of <3. A colonoscopy showed a mass in her right transverse colon (a 9 cm moderately differentiated adenocarcinoma found at laparotomy). The extreme thrombocytosis was attributed to her iron-deficiency anemia as well as her malignancy.
DISCUSSION: Iron-deficiency anemia affects a large number of Americans, but rarely presents with the laboratory findings of extreme thrombocytosis. Multiple laboratory tests are used to evaluate anemia. The serum ferritin concentration is an excellent indicator of iron stores and provides superior sensitivity and specificity when compared with other commonly utilized tests. When an obvious source of blood loss (such as menstruation) cannot be identified, all persons with iron-deficiency anemia should have their GI tract evaluated for the source of blood loss. Whether upper or lower GI tract evaluation should be undertaken can often be determined by site-specific symptoms. The etiology of extreme thrombocytosis has been evaluated by multiple studies which have revealed both reactive (infection, hyposplenism, malignancy, and iron-deficiency anemia) and myeloproliferative (chronic granulocytic leukemia, primary thrombocythemia, and polycythemia vera) causes.

**ACUTE INFLAMMATORY ARTHRITIS SECONDARY TO PARVOVIRUS B19.** R.J. Michael[1], J.Z. Engel[1]; [1]Vanderbilt University, Nashville, TN *(Tracking ID #50899)*

LEARNING OBJECTIVES: 1. Review the clinical and laboratory approach to evaluating a patient with acute inflammatory arthritis. 2. Review the clinical presentation of arthritis caused by parvovirus B19. 3. Recognize the clinical spectrum of parvovirus B19 infection.
CASE INFORMATION: A 39 y.o. WF with a history of tension headaches and depression presented to clinic with several days of pain and swelling in multiple joints. She was in her usual state of health until approximately three weeks prior when she developed URI symptoms including an intermittent global headache, clear rhinorrhea, a sore throat, and a nonproductive cough. She had no fever, chills, night sweats, nausea, vomiting, anorexia, rash, or ill contacts. She did have an 8 y.o. who was in grade school and a 3 y.o. who recently began daycare. These symptoms resolved over 7 days. Approximately 2 weeks later, she developed an aching pain in both hands and wrists that progressed over a few days to include her bilateral shoulders, knees, ankles, and feet. Subsequently, she developed swelling in the affected joints of her fingers, knuckles, and both wrists. No other joints were swollen. On exam, she appeared well and had normal vital signs. She weighed 61 kg. Her exam was unremarkable except for obvious synovitis of her bilateral proximal interphalangeal joints (PIPs), metacarpophalangeal joints (MCPs), and wrists. Her initial lab work showed a WBC of 5.5, an Hgb/Hct of 12.4/36, a MCV of 89, a platelet count of 289,000, and an unremarkable comprehensive metabolic panel. Further testing revealed an ESR of 6; a CRP of <0.3; negative serologies for HIV and hepatitis B & C; a RF of < 11; and a negative ANA. The diagnosis was made when parvovirus B19 serologies revealed an IgG of 5.8 (nml < 0.9) and an IgM of 6.1 (nml < 0.9).
DISCUSSION: The differential diagnosis of acute inflammatory polyarthritis includes viral (parvovirus B19, hepatitis B & C) and autoimmune (RA, SLE) causes. The history, physical exam, and laboratory evaluation should focus on obtaining data that could identify one of these causes. Parvovirus B19 is an underappreciated cause of an acute inflammatory polyarthritis in

the adult population. The typical pattern of arthritis in adults with this infection can mimic rheumatoid arthritis and consists of a symmetric polyarthritis that can affect any joint, with the PIPs and MCPs being most commonly affected. In addition to acute arthropathy/arthritis, other common clinical manifestations of parvovirus B19 include transient aplastic crises in patients with sickle cell anemia, erythema infectiosum or "Fifth Disease" in children, hydrops fetalis in some infected fetuses, and chronic or relapsing bone marrow suppression in immunocompromised hosts. Knowledge of the natural history of parvovirus B19 infection aids in the understanding of the clinical manifestations and laboratory evaluation of this common pathogen.

**SIMULTANEOUS CASES OF IATROGENIC THYROTOXICOSIS: A COMPLICATION OF TREATMENT FOR "WILSON'S THYROID SYNDROME."** L. Miller[1]; [1]Emory University, Atlanta, GA *(Tracking ID #51988)*

LEARNING OBJECTIVES: 1. Become familiar with Wilson's Thyroid Syndrome (WTS), an "illness" popularized in the lay press and on the Internet, but unrecognized by the American Thyroid Association. 2. Recognize the risks involved in treating patients for non-traditional illnesses.
CASE INFORMATION: Two women were simultaneously transferred to our institution for critical care management of thyrotoxicosis. Both were being treated by the same physician for WTS, an unrecognized disorder. Proponents describe WTS as a "reversible problem with tissue processing of thyroid hormone that is undiagnosable with thyroid blood tests." Advocates recommend treatment with compounded triiodothyronine (T3). Patient 1, a 58-year-old female with a history of depression and fibromyalgia, initially presented to a local hospital with bizarre behavior four days after initiating therapy for WTS. Laboratory exam showed a T3 level of greater than 800 and a TSH of less than 0.04. She was diagnosed with thyrotoxicosis, and her condition deteriorated despite therapy. On arrival to our institution, she had a BP of 200/90, HR of 144, and temperature of 38°C. Cardiac exam revealed a regular tachycardia, and neurologic exam revealed a stuporous patient with normal deep tendon reflexes. The patient was intubated and treated with esmolol and hydrocortisone. She remained obtunded for several days with markedly elevated T3 levels, and ultimately underwent charcoal hemoperfusion, after which the T3 level slowly declined. Patient 2, a 49-year-old female, had been treated for WTS for two weeks when she presented to a local hospital with altered mental status, fever and tachycardia. She was also diagnosed with thyrotoxicosis, with a T3 level of greater than 800 and an undetectable TSH. The patient arrived at our intensive care unit obtunded, hypertensive and tachycardic, and was immediately intubated and started on esmolol, nitroprusside and hydrocortisone infusions. Despite prolonged obtundation, her T3 levels returned to normal relatively quickly, and she did not require hemoperfusion.
DISCUSSION: It is crucial to recognize patients who are taking medication for non-traditional illnesses, and to realize the dangers in treating unrecognized illnesses like WTS. WTS proponents state that the syndrome is characterized by a low body temperature, which in turn results in a myriad of non-specific symptoms, including fatigue and lack of motivation. Advocates recommend treatment with a therapeutic trial of compounded T3, which has potential serious side effects. In these cases, an error in compounding resulted in thyrotoxicosis, a life-threatening medical emergency.

**PHEOCHROCYTOMA PRESENTING AS MYOCARDIAL INFARCTION.** A. Mirza[1]; [1]Geisinger Medical Center, Danville, PA *(Tracking ID #49810)*

LEARNING OBJECTIVES: 1. Recognise pheochromocytoma as a possible cause of Myocardial Infarction in a young patient without many risk factors for coronary artery disease. 2. Manage Hypertension in patients of Pheochromocytoma by alpha adrenergic blockers before starting beta adrenergic blockers. 3. Recognise Pheochromocytoma as a possible cause of uncontrolled migraine in a young female patient.
CASE INFORMATION: A 37 year old female patient presented to emergency room with dull substernal chest pain radiating to neck and middle of back. She had past history of poorly controlled migraine and hypertension. She had similar symptoms 3 months ago leading to hospitalization and subsquently a coronary angiogram which revealed normal coronary arteries. Physical examination revealed pulse 120/minute, BP 180/90 equal in both arms. Rest of physical examination was unremarkable. EKG revealed ST segment depression in leads II,III,AVF and V4-V6. Troponin T was 1.2ng/ml (<.10), CK 261U/L (24 – 170), CKMB 29.5 ng/ml (0.0 – 9.0) and Relative Index 11.3% (0 – 4). She was diagnosed with myocardial infarction and admitted to coronary care unit.
After recieving intravenous Metoprolol she became drowsy, cold and clammy with alteration of mental status and paradoxical increase in blood pressure. At this point Pheochromocytoma was suspected and random urinary catecholamine levels were measured which revealed Epinephrine level of 19435 ug/g createnine (2 – 16), Norepinephrine 9166 ug/g createnine (7 – 65) and total Catecholamine 2919 ug/g createnine. Ultrasound scan of Adrenal glands revealed a soft tissue mass measuring 5.3×4.4×4.8 cm in size in right adrenal gland. She was started on Phenoxybenzamine with gradually increasing doses and Labetolol and Metyrosine were subsquently added. Her blood pressure decreased to normal and mental status improved. She subsequently underwent excision of tumor weighing 80 grams which on histology confirmed pheochromocytoma. Her migraine headaches dramatically improved after the surgery.
DISCUSSION: Pheochromocytoma can effect cardiovascular system in different ways including hypertension, myocardial infarction, supraventricular arrythmias, reversible and if untreated irreversible cardiomyopathy. Beta adrenergic blockers can cause paradoxical increase in BP by blocking beta mediated vasodilatation in skeltal muscle.Thus hypertension in Pheochomocytoma should be treated with alpha adrenergic blockers before starting beta blockers. Catecholamines have a direct injurious effect on myocardium in addition to increasing myocardial metabolism and causing vasospasm. If cardiomyopathy is identified early it can be remarkably reversed by pharmacological blockade and later removal of tumor. Irreversible dilated cardiomyopathy can result from prolonged exposure to circulating catecholamines.

**SARCOIDOSIS ASSOCIATED HYPERCALCEMIA IN A PATIENT WITH CHRONIC RENAL FAILURE.** A. Mirza[1], J.E. Hartle[1], K.K. Pachipala[1]; [1]Geisinger Medical Center, Danville, PA *(Tracking ID #50503)*

LEARNING OBJECTIVES: 1. Recognise Sarcoidosis as a possible cause of elevated Calcium and normal or high 1,25 Dihydroxyvitamin D level in a patient with chronic renal failure. 2. Manage hypercalcemia aggressively in a patient with chronic renal failure and do a thorough workup for possible causes. 3. Treat hypercalcemia of Sarcoidosis by systemic Corticosteroids.
CASE INFORMATION: A 31 year old gentleman with dialysis dependent end stage renal failure secondary to diabetic nephropathy presented to outpatient clinic with 1 week history of lethargy, weakness, nausea and vomiting. Physical examination was unremarkable. Laboratory studies revealed elevated total Calcium 12.7 mg/dl (8.3 – 10.5) and ionized Calcium 1.8mg/dl (1.1 – 1.3). Rest of the blood studies revealed Urea 56 mg/dl (10 – 20), Createnine 1.3mg/dl (.7 – 1.5) and Phosphorus 7.2 mg/dl (2.5 – 4.8). Hypercalcemia persisted despite stopping calcium supplements. Workup for hypercalcemia including serum Parathyroid hormone level, Thyroid function, Parathormone related peptide, serum Protein Electrophoresis and Bence Jones protein in urine was negative. Serum levels of 1,25 dihyroxyvitamin D was normal 41 pg/ml (18 – 62 pg/ml) despite end stage renal failure and patient not being on supplements. Serum Angiotensin Converting Enzyme level was 79 U/L (20 – 60 U/L). CT scan of abdomen revealed splenomegaly with multiple lesions. Patient underwent diagnostic laprotomy with splenectomy and liver biopsy. Pathology result revealed Sarcoidosis in spleen and liver. Patient was started on prednisone with improvement in symptoms and decrease in calcium level to normal within 2 weeks.
DISCUSSION: Hypercalcemia in chronic renal failure should be managed aggressively as associated hyperphosphatemia makes them prone to metastatic calcification and calciphylaxis. Sarcoidosis commonly causes hypercalcemia from dysregulated production of Vitamin D by activated macrophages. Serum level of 1,25 dihydroxyvitamin D is normally low in chronic renal failure. If however level is normal or high and patient is not recieving supplements, extrarenal production of 1,25 dihydroxyvitamin D by granulomatous disease like Sarcoidosis should be suspected. When Sarcoidosis is identified as a cause of hypercalcemia it responds well to treatment with Corticosteroids.

**AN UNUSUAL CAUSE OF STROKE IN THE YOUNG.** K. Moorthi[1], T. Narendra[1], P. Radhakrishnan[1]; [1]Saint Francis Hospital, Evanston, IL *(Tracking ID #50499)*

LEARNING OBJECTIVES: 1. Recognise the clinical features of the syndrome of Mitochondrial myopathy, Encephalopathy, Lactic Acidosis and Stroke like episodes (MELAS). 2. Recognise MELAS as a cause of stroke in the young.
CASE INFORMATION: A 35-year-old male presented with a four day history of headache. There was history of sudden onset of right upper extremity weakness that resolved in four hours. There was history of four such episodes of transient right upper extremity weakness, each lasting 4 – 6 hours, in the past 3 years.
Physical Examination: His vital signs were normal. Cardiac, respiratory and abdominal exams were normal. The Folstein Mini Mental status Exam score was 14. Neurological exam revealed 4/5 power and hyperreflexia in the right upper extremity.
Laboratory data: CT scan of the brain showed advanced generalised atrophy of the cerebrum and cerebellum. Carotid doppler and trans-esophageal echocardiography were normal. Cerebral angiogram was normal with no evidence of vasculitis or dissection. ESR was 5 and ANA was negative. Activated partial thromboplastin time was normal. Antiphospholipid antibody, VDRL and HIV tests were negative.
The blood lactate level was 32 mg/dl (normal 5 – 15 mg/dL) and pyruvate level was 0.8 mg/dl (normal 0.5 – 1.5 mg/dL). Muscle biopsy revealed cytochrome c oxidase negative red ragged fibres (RRF). The diagnosis of MELAS was confirmed by the presence of the MELAS 3243 mitochondrial DNA mutation.
DISCUSSION: Twelve percent of first strokes occur in patients under 45 years of age. The causes include 1. Cardioembolic 2. Carotid dissection 3. Migraine 4. Vasculitis 5. HIV 6. Moya-Moya disease 7. Coagulopathies and 8. MELAS. The cause is unknown in about 25% of the cases.
MELAS is a mitochondrial cytopathy that follows a pattern of maternal inheritance. The clinical features include encephalopathy and stroke like episodes, which invariably occur before age 40. The "strokes" do not conform to vascular territories and are probably associated with metabolic derangements spreading beyond an ischemic focus. The patients may also have migraine like headaches, diabetes mellitus and deafness. The diagnosis is made by elevated lactate levels in blood and spinal fluid, RRF in muscle biopsy and mitochondrial DNA analysis. Treatment is with Coenzyme Q 10.
Conclusion: In the absence of the usual causes of stroke in the young, MELAS should be considered and blood lactate levels should be checked.

**PURULENT PERICARDITIS AND CARDIAC TAMPONADE CAUSED BY STAPHYLOCOCCUS AUREUS UROSEPSIS.** K. Moorthi[1], P. Radhakrishnan[1], F.A. Zar[1]; [1]Saint Francis Hospital, Evanston, IL *(Tracking ID #51317)*

LEARNING OBJECTIVES: 1. Recognise the clinical features of purulent pericarditis. 2. Suspect purulent pericarditis in a septic patient with fever, dyspnea, leucocytosis and an enlarged cardiac shadow on chest radiograph. 3. Consider a urinary source in the absence of the usual causes of purulent pericarditis.
CASE INFORMATION: A 90-year-old male, a nursing home resident, was brought to the emergency department in acute respiratory distress and was intubated. On physical examination, he was obtunded, febrile (temperature 102 F), pulse was 100/min, irregularly irregular, blood pressure (BP) was 100/60 mm Hg and the respiratory rate was 28/min. The jugular venous pressure was 12 cm, heart sounds were muffled and there was no pericardial rub. Chest and abdominal and skin examinations were normal. The foley catheter was draining turbid urine. Chest radiograph showed an enlarged cardiac shadow with clear lung fields. Echocardiogram confirmed the presence of a large pericardial effusion. Shortly after admission, the patient's BP dropped to 60/30 mm Hg and a diagnosis of cardiac tamponade was considered. Pericardiocentesis yielded 1500 cc

of purulent fluid. Peripheral WBC count was 18,000/cu mm with 85% neutrophils. Urinalysis revealed more than 300 WBCs per high power field and many bacteria. Cultures grew Staphylococcus aureus in the pericardial aspirate, urine (over 100,000 colony forming units) and blood. The sensitivities were identical. The patient was started on vancomycin.
DISCUSSION: Purulent pericarditis is rare. The usual causes include (a). Extension from a postoperative infection following thoracic surgery (b). Spread from a suppurative focus below the diaphragm (c). Hematogenous spread during bacteremia. This disease should be suspected in a debilitated patient with fever, dyspnea, leucocytosis and an enlarged cardiac shadow on chest radiograph. A high index of suspicion and early consideration of the diagnosis is essential, because the mortality rate is high. Best results have been reported when antibiotic therapy is combined with open surgical drainige. Urosepsis leading to purulent pericarditis and cardiac tamponade has not been previously reported. Conclusion: In the absence of the usual causes of purulent pericarditis, a urinary source should be considered.

**VALPROATE-INDUCED HYPERAMMONEMIC ENCEPHALOPATHY.** K. Moorthi[1], P. Chahal[1], S. Nair[1], M. Mouammar[1], P. Radhakrishnan[1], J. Joseph[1]; [1]Saint Francis Hospital, Evanston, IL *(Tracking ID #51415)*

LEARNING OBJECTIVES: 1. Recognise the clinical features of valproate-induced hyperammonemic encephalopathy (VHE). 2. Diagnose VHE in a comatose patient taking valproate by checking ammonia levels. 3. VHE is a life threatening condition that is easily reversed.
CASE INFORMATION: A 55-year-old male with history of seizure disorder, on carbamazepine, was admitted to the hospital with generalised tonic-clonic seizures. An EEG was done which revealed status epilepticus. Sodium valproate was added and the EEG showed disappearance of abnormal activity and he was discharged home. Four days later he was found unresponsive by his wife.
Physical examination: The patient was unresponsive, with decorticate posturing in response to pain. Temperature was 99 F, heart rate was 110/mt , blood pressure 100/60 mmHg and respiratory rate was 26/mt.
Laboratory data: Electrolytes were normal and urinary toxicology screen was negative. CT scan of the brain was normal. The patient's valproic acid level was 89 mcg/mL (normal 50 – 100 mcg/mL) and carbamazepine level was 7 mcg/mL (normal 3 – 8 mcg/mL). EEG showed diffuse slow waves. Liver function tests were normal except for an ammonia level of 220 mcg/dL (normal 10 – 80 mcg/dL).
The valproate was discontinued and the patient was treated with lactulose. The patient recovered completely. The repeat ammonia level after 48 hours was 40 mcg/dL.
DISCUSSION: VHE is a rare life threatening condition that is easily reversed with proper treatment. Most cases occur in patients with normal liver function. It develops within days or weeks after the onset of valproate therapy. The typical signs of VHE are acute onset of impaired consciousness with confusion and lethargy, focal or bilateral neurologic signs or symptoms and an increase in seizure frequency. EEG changes include pronounced generalised slowing intermixed with high amplitude slow waves.
Valproate induces hyperammonemia by inhibiting mitochondrial acetyl CoA and causing secondary deficiency of carnitine. Identified aggravating factors include concomittant phenobarbital, carbamazepine or phenytoin administration and increased protein intake. Treatment includes lactulose and L-carnitine.
Conclusion: 1. VHE should be considered in the differential diagnosis of a patient with seizures who presents with a change in baseline mental status. 2. Ammonia levels should be obtained as part of the initial work up in a comatose patient taking valproate.

**MYOCARDIAL INFARCTION DURING SEXUAL ACTIVITY.** S. Bhat[1], V. Mukerji[1], R. Nonneman[1]; [1]Southern Illinois University, Springfield, IL *(Tracking ID #52141)*

LEARNING OBJECTIVES: 1) To define the possible mechanism of myocardial infarction (MI) during sexual activity. 2) To review the epidemiologic data in reference to this case. 3) To consider the clinical management of such patients.
CASE INFORMATION: A 56-year-old man presented to the Emergency Room with chest pain that developed during sexual intercourse. The man denied prior cardiac symptoms and had no history of heart disease. The pain was substernal, persistent, of moderate intensity and was accompanied by mild dyspnea and diaphoresis. There was no past history of hypertension or hypercholesterolemia. Physical examination revealed a mildly diaphoretic patient, but was otherwise unremarkable. The electrocardiogram showed sinus rhythm with inferior ST segment elevations. Cardiac enzymes were elevated with a total CK of 420 IU/liter, a CKMB of 30 IU/liter and Troponin-I of 4.0 ng/ml. The patient was immediately taken for cardiac catheterization which revealed severe triple vessel coronary artery disease with subtotal occlusion of the posterior descending artery. The patient was referred for coronary artery bypass grafting, had an uneventful post-operative course and was referred for outpatient cardiac rehabilitation.
DISCUSSION: Studies have shown that the resting heart rate rises with foreplay and may double during orgasm. The blood pressure and rate pressure product also increase accordingly. The estimated risk of MI during sexual activity is 1 in a million for individuals with no known serious health problem. For patients with known coronary artery disease, 30% have myocardial ischemia during sex. Coital deaths have been reported, with 75% occurring during extramarital sex usually with a younger partner in an unfamiliar environment. Our patient had severe triple vessel coronary artery disease without acute coronary occlusion, suggesting that the mechanism of MI in this case was an imbalance between myocardial oxygen supply and demand. It is possible that plaque rupture and coronary occlusion can also occur during sex as has been demonstrated for MI with heavy exercise, probably secondary to autonomic stress. Our experience suggests that acute MI with sexual activity can be treated in the same manner as acute MI in other settings. Cardiac rehabilitation and reassurance of the patient based on epidemiologic data may be necessary to restore normal physical and emotional health.

**PLATYPNEA-ORTHODEXIA SYNDROME IN A PATIENT WITH PNEUMOCYSTIS CARINII PNEUMONIA.** M. Ngo[1], E. Warm[1]; [1]University of Cincinnati, Cincinnati, OH *(Tracking ID #50935)*

LEARNING OBJECTIVES: 1. Recognize the clinical features of platypnea-orthodexia syndrome. 2. Recognize conditions associated with platypnea-orthodexia syndrome, including pneumocystis carinii pneumonia.
CASE INFORMATION: A 40-year-old man with AIDS presented with one week of fever, night sweats, productive coughs, and dyspnea. He was febrile, tachycardic, and tachypneic. When he sat up for examinations he became severely dyspneic and oxygen decreased to 70% on non-rebreather mask. However, his dyspnea resolved and his oxygen saturation increased to 96% immediately after he became supine. Radiograph of the chest revealed diffuse bilateral interstitial infiltrates and the patient was treated with trimethoprim/sulfamethoxazole and prednisone. Repeated radiograph of the chest did not reveal pneumothorax or any change. An echocardiogram with saline contrast study was normal. A diagnostic flexible bronchoscopy was performed and the bronchoalveolar lavage confirmed pneumocystis carinii.
DISCUSSION: Platypnea-orthodexia is a rare syndrome, with only 40 cases reported up to date. Platypnea and orthodexia are defined as dyspnea and arterial oxygen desaturation induced by upright posture and relieved by recumbency, respectively. Conditions associated with the syndrome consist of right-to-left intra-cardiac shunt, constrictive pericarditis, loculated pericardial effusion, ascending aortic aneurysm, emphysema, pulmonary arteriovenous communications, post pneumonectomy, ARDS, hepatic cirrhosis, and autonomic dysfunction. To our knowledge, this is the only reported case of platypnea-orthodexia syndrome in association with pneumocystis carinii pneumonia. The precise mechanisms for both platypnea and orthodexia are not yet known, but diffuse zone I phenomenon has been proposed as one of the possible mechanisms. In the upright position of the normal lung, the alveolar pressure exceeds both the pulmonary arterial and venous pressures at the apex because there is a decrease in the effective perfusion pressure due to gravity. In diffuse lung disease states such as emphysema, ARDS, and pneumocystis carinii pneumonia, zone I occurs in diffuse areas of the lungs, causing an increase in ventilation-perfusion mismatch, increased work of breathing, and dyspnea. This cascade would be reversed in the supine position, explaining the disappearance of platypnea and orthodexia.

**WHY IS HE SUDDENLY WEAK?** B. Nguyen[1], M.T. Nguyen[1], N. Mikhail[1]; [1]UCLA/San Fernando Valley Program, Sepulveda, CA *(Tracking ID #51653)*

LEARNING OBJECTIVES: 1) To review periodic paralysis, its causes, and management. 2) To recognize an uncommon presentation of diabetes. 3) To discuss importance of knowing potassium status prior to initiating treatment with insulin for hyperglycemic states.
CASE INFORMATION: A previously healthy 39 y.o. Guatemalan male presented to the ER with progressive ascending weakness and paralysis. He sought care after finding that he was unable to move his legs upon awakening. He denied any recent upper respiratory infection, fever, chills, nausea, vomiting, diarrhea, shortness of breath, abdominal pain, urinary symptoms, headache, visual changes, rash, tick bites, or recent travel. Family history was negative for paralysis but positive for diabetes. In the ER, he was febrile, tachycardic, and physical exam revealed 0/2 DTR's of bilateral upper and lower extremities, 1-2/5 strength bilateral upper extremities, 0/5 strength bilateral lower extremities, sensation to light touch intact, and down-going babinski bilaterally. Pt. was seen in the ER by Neurology and admitted to the ICU with a working diagnosis of Guillian-Barre. Noncontrast head CT was negative for acute bleed. LP revealed opening pressure of 16, protein = 16, glucose = 550. Admitting labs showed Na = 128, K = 1.9, Cl = 82, CO2 = 26, BUN = 19, Cr = 1.3, glucose = 1940, Mg = 2.0, PO4 = 3.6. In the ICU, potassium was aggressively repleted intravenously. Insulin therapy was initially held given the low K+. Within approximately 6 hours, he regained most strength in all extremities, potassium level corrected, and insulin therapy was initiated. Normal renin and aldosterone levels ruled out hyperaldosteronism. Upon further questioning, he admitted to recent onset of polyuria and polydipsia and excessive drinking of concentrated juices to combat hot weather. His hospital course was uneventful with no recurrence of paralysis. Good control of blood sugars were achieved with oral hypoglycemic agents, and potassium levels stabilized without requiring oral supplementation.
DISCUSSION: Diabetes mellitus is a common health problem with admissions for hyperglycemia being the most common presentation. To our knowledge, this is the first case of diabetes mellitus presenting by hyperosmolar hyperglycemic state precipitating hypokalemic paralysis. Hypokalemic periodic paralysis usually presents below age 25. It is an autosomal dominant condition in two-thirds of cases and sporadic in one-third. Precipitating causes include high carbohydrate load, excessive exercise, alcohol, and an association with hyperthyroidism. It is likely that hyperglycemia triggered our patient's paralytic episode. This likely resulted from a high carbohydrate load and additional loss of potassium in urine excretion secondary to increased urine osmolarity. Although insulin is usually the mainstay of therapy for hyperglycemic states, it it important to recognize that in this case, prompt insulin therapy would have been life threatening. Such cases should be initially managed without insulin and insulin should only be given after normalization of serum K+ level.

**A PERSISTANT PLEURAL EFFUSION.** B. Nguyen[1], S. Wali[1], A. Gomez[1]; [1]UCLA/San Fernando Valley Program, Sepulveda, CA *(Tracking ID #51656)*

LEARNING OBJECTIVES: 1) To review the differential diagnosis of pleural effusions. 2) To recognize the importance of continually updating diagnostic hypotheses and therapeutic options throughout a patient's clinical course.
CASE INFORMATION: A 42 y.o. Hispanic female with h/o thyroid disorder and anemia was admitted for evaluation of left pleural effusion. She had been diagnosed with pneumonia one month prior and given antibiotics but continued to have increasing shortness of breath, productive cough, intermittent fever, total body pain, and weight loss totaling 10 pounds. She denied nausea, vomiting, abdominal pain, urinary symptoms, or rash. In the ER, vitals showed T = 37.7, HR = 86, BP = 127/64, RR = 22, 84% O2 sat. on room air. A CXR revealed a left pleural effusion. She was given Ceftriaxone and Azithromycin for presumed pneumonia. Initial labs revealed WBC = 4.1, HCT = 29, K = 4.1, BUN/CR = 12/0.6, ESR = 100. Diagnostic thoracentesis yielded cloudy yellow fluid with pH = 7.59, white cells=800 with 71%

neutrophils, 21% lymphocytes. PPD with controls showed anergy. Chest CT revealed small bilateral pleural effusions, small LLL atelectasis versus consolidation, mild cardiomegaly, and no masses. Despite IV antibiotics, her shortness of breath, fever, and diffuse arthralgias persisted. Blood and pleural cultures were negative. TSH was elevated at 24, but her mild hypothyroidism was not felt to be the cause of her symptoms. Given the leukopenia, anemia, elevated ESR, and persistant fevers, a connective tissue work-up was initiated showing ANA = 1:2560 (homogenous), double-stranded DNA = 1:320, anti-smith AB = positive. The patient met criteria for diagnosis of SLE. She gradually responded to antibiotic and steroid therapy with improvement in respiratory status and arthralgias.
DISCUSSION: There are a wide variety of causes for pleural effusions. If there is a concurrent infiltrate, it is often easy to attribute the effusion as a parapneumonic effusion and to file symptoms away as secondary to the infection. In the above case, the initial differential diagnosis on admission included infection vs hypothyroidism vs malignancy. It was mainly secondary to her persistant fever spikes and shortness of breath that other underlying conditions were sought out. Pleurisy and pleural effusions are common manifestations of SLE with lupus pneumonitis causing fever, dyspnea, and cough. These pulmonary conditions usually respond well with glucocorticoids. It is important to determine the underlying cause of pleural effusions and to reevaluate ones differential diagnostic hypotheses especially when there is no improvement in symptoms.

**SEVERE HEART FAILURE FROM AN ARTERIOVENOUS FISTULA.** T. Nguyen[1], L. Mankin[1], W. Ching[1], E. Yee[1]; [1]UCLA San Fernando Valley Program, Sepulveda, CA *(Tracking ID #51377)*

LEARNING OBJECTIVES: 1. Recognize arteriovenous fistula as an uncommon, but potentially reversible cause of heart failure. 2. Emphasize the importance of physical exam findings in raising the index of suspicion for arteriovenous fistula.
CASE INFORMATION: A 48-year-old African-American male, with PMH of hypertension and hypothyroidism, presented with two weeks of chest pressure and progressive shortness of breath. He also reported bilateral leg swelling, orthopnea, and occasional nausea and vomiting, but denied syncope, palpitations, diaphoresis, headache, dizziness, or fever/chills. Presenting vital signs were significant for heart rate of 120, respiratory rate of 28, and a room air oxygen saturation of 85%. Physical exam revealed jugular venous distension, bibasilar lung crackles, tachycardia, S3 gallop, and 2+ pitting edema in bilateral lower extremities. A loud abdominal bruit was audible throughout all four quadrants, but all pulses were intact. The EKG was normal and CXR revealed cardiomegaly and pulmonary edema. CBC, chemistry panel, liver function tests, and thyroid function tests were all within normal limits. On admission, an acute MI was ruled out with serial negative troponins. Standard treatment for heart failure was started. Initial work-up include a 2D-Echo that showed a dilated right ventricle, ejection fraction 60%, and no wall motion abnormalities. An exercise-treadmill test was nondiagnostic, and subsequent cardiac catheterization showed a single 70% RCA occlusion and a very high cardiac output state (CO = 13L). Suspecting an arteriovenous fistula, an MRI of the abdomen and a pelvic angiogram revealed a large fistula between the left common iliac artery and the inferior vena cava at the confluence of the iliac veins. An interventional radiology procedure was performed to place a wallgraft stent at the point of the fistula. Following placement of the stent patient improved and was discharged from the hospital with no further symptoms or signs of heart failure. At 1-month and 3-month follow-ups, he was asymptomatic, and was able to ambulate at least 1 mile without difficulty. The patient was not on any treatment for heart failure.
DISCUSSION: Heart failure is a common medical condition that can cause significant morbidity and mortality. Potentially reversible and unusual causes of heart failure including thyrotoxicosis, anemia, and arteriovenous fistula should always be sought because their reversal will eventually lead to resolution of the heart failure, and also spare the patients the need for chronic medical therapy. Arteriovenous fistula is an abnormal communication between an artery and a vein, and may be congenital or acquired. Clinical manifestations depend on the size and location of the fistula. Large AV fistulas may result in heart failure as in the case presented here. Physical exam finding of a bruit is an important clue in raising the index of suspicion for this diagnosis, and can obviate unnecessary work-up. Therefore, as frequently is the case in medicine, a good and thorough physical exam is an essential aspect of any patient encounter, and may assist greatly in arriving at the correct diagnosis.

**PURPLE PATCHES: CLINICAL CLUES TO HYPOXIA IN HIV.** T. Nguyen[1], L. Orlando[2]; [1]Tulane University, Metairie, LA; [2]Tulane University, New Orleans, LA *(Tracking ID #51378)*

LEARNING OBJECTIVES: 1) Recognize that a detailed physical exam is the key to narrowing the broad differential diagnoses of hypoxia in HIV patients. 2) Diagnose pulmonary Kaposi's sarcoma using clincal clues and appropriate diagnostic studies.
CASE INFORMATION: A 23 year-old man with HIV presented complaining of progressive shortness of breath, fever, and cough for one month. He had a history of PCP, disseminated MAC, and bone marrow suppression with severe anemia and pancytopenia. Four days prior to admission his cough produced blood-tinged sputum. He denied chest pain, epistaxis, or weight loss. At presentation he was compliant with therapy for HIV, MAC, and PCP. He had a pulse of 148, respirations 28, temperature 38.9°C, and 90% oxygen saturation. There was a 2cm reddish purple papule on the hard palate and three 2mm nontender vesicles on the left shoulder. The lung and cardiac exams were normal except for poor air movement. His PaO2 was 64, hematocrit 18%, and LDH 392 IU/L. His last CD4 count was 19/mm3 with a viral load of 750,000 copies/mL. Chest radiography revealed bilateral fluffy reticulonodular infiltrates. Chest CT showed poorly marginated confluent nodules along the bronchoarterial tree. Bronchoscopy identified pulmonary Kaposi's Sarcoma.
DISCUSSION: Hypoxia in immunosuppressed patients has a tremendous differential. Clinical clues identified by a thorough history and physical can assist in establishing the diagnosis. Kaposi's Sarcoma presents with violaceous painless papules on the skin or oropharynx, rarely involving the respiratory or gastrointestinal tracts. Pulmonary lesions, typically associated with disseminated disease, can occur despite minimal cutaneous findings. In our patient the combination of hypoxia, anemia and the single Kaposi's-like lesion on the palate prompted bronchoscopy. Early identification and prompt initiation of therapy can decrease mortality; therefore careful screening for lesions, even isolated ones, may improve outcomes.

**GAMMA-HYDROXYBUTYRATE — AN EMERGING DRUG OF ABUSE.** P. Ogershok[1], R. Mogollon[1]; [1]West Virginia University, Morgantown, WV *(Tracking ID #50714)*

LEARNING OBJECTIVES: 1. Recognize the clinical features of Gamma-Hydroxybutyrate (GHB) overdose. 2. Treatment of the most common complications of GHB ingestion.
CASE INFORMATION: Eight cases of life-threatening GHB ingestion were admitted to our institution for the years 1999 to 2001. Five men and 3 women were treated with an age range of 21 – 34 years. One patient used the drug as a dietary supplement while all other use was recreational. The most common presenting symptoms were acute nausea/vomiting, loss of consciousness, and respiratory depression (100%). Other symptoms included hypothermia (5 patients), bradycardia (3 patients), headache (2 patients), blurred vision (1 patient) and seizures (1 patient). On drug screening half of the patients were also positive for cannabis, two for ethanol, and one for cocaine. All of the patients required intubation. Two were intubated at the scene by paramedics, one in the emergency department, and the rest in the intensive care unit. One patient intubated at the scene suffered a traumatic intubation complicated by arytenoid dislocation but was extubated within 24 hours. All the other patients remained on mechanical ventilation with a time range of 3 to 8 hours. The three patients with bradycardia were treated with atropine and returned to normal sinus rhythm. Except for the patient with the traumatic intubation, all patients were discharged within 24 hours.
DISCUSSION: GHB and its precursors, gamma-butyrolactone (GBL) and 1,4-butanediol (1,4-BD), continue to be used as both dietary supplements and recreational agents despite their serious side effects, fatalities, and warnings from the FDA. GHB is a structural analog and metabolite of gamma aminobutyric acid (GABA). It has a rapid onset of action after oral ingestion and the clinical effects last usually 6 to 10 hours. One of the most common serious side effects is CNS depression progressing in many cases to coma. Respiratory depression is common and in this case series all patients admitted required intubation. Many patients with respiratory depression can maintain their airway and be closely monitored without intubation. Vomiting, hypothermia, bradycardia, and seizures are also frequently observed. Treatment with airway support, activated charcoal, intravenous access, and cardiorespiratory monitoring are standard care. Atropine for symptomatic bradycaria and benzodiazepines for seizures may be necessary. Patients can be discharged if clinically stable after 6 hours of observation. If patients present initially comatose or if clinically intoxicated after 6 hours of observation they should be admitted. GHB, GBL and 1,4-BD are prevalent drugs of abuse in the USA. They continue to be available from internet websites, dietary supplements in health food stores, and as illicit products manufactured in home laboratories. Physicians nationwide need to be able to recognize and manage GHB, GBL, and 1,4-BD toxicities.

**DECIDING WHETHER TO TREAT HEPATITIS C: FACTORING IN COMPETING RISKS.** J.R. Orland[1]; [1]University of California, San Francisco, San Francisco, CA *(Tracking ID #51977)*

LEARNING OBJECTIVES: 1) Recognize the staging method for hepatitis C-related liver disease. 2) Engage the patient in an informed discussion of the risks and benefits of treatment, based on the patient's duration and stage of disease, age, and co-morbid conditions.
CASE INFORMATION: A 58 year old man with hepatitis C (HCV) presents to his primary care physician asking for advice regarding treatment. He has a brief history of injection drug use (IDU) ending 35 years ago. He drinks socially and has no other HCV risk factors. He has a 60 pack-year smoking history, mild emphysema, and adult onset diabetes. In addition, he has a history of myocardial infarctions and an ejection fraction of 40%. After a liver biopsy revealed grade 1 stage 1 disease, his hepatologist encouraged him to start pegylated interferon and ribavirin therapy. The patient was informed of the many serious potential side effects (SE) of these agents and is uncertain about whether he wants treatment.
DISCUSSION: Evaluation of HCV patients generally includes a liver biopsy. Biopsy results are reported in terms of a standardized numeric grading system, the histologic activity index (HAI) or Knodell's score. In HCV patients, the HAI provides an index of the extent of inflammation ('grade') and, most importantly, fibrosis ('stage'). Fibrosis stage is reported as a number between 0 (no fibrosis) and 4 (cirrhosis). A patient with stage 0 or 1 on biopsy is considered to have mild disease, stage 2 indicates moderate disease, and stages 3 and 4 indicate advanced disease.
This patient is among the 2.7 million Americans infected with HCV. Each year, about 8000 die as a result of HCV-related disease. Evidence suggests that early-stage HCV liver disease of long duration progresses slowly if at all. Common co-morbidities among the HCV infected, such as IDU, alcoholism, and homelessness are often considered contra-indications to treatment, due to the presumption that these conditions convey high risks of poor adherence and re-infection. Conditions that are common in the general population, however, such as heart and lung disease, are often considered only in terms of their likelihood to potentiate the side effects of anti-HCV therapy. In fact, such co-morbidities are often more likely to lead to death than is HCV itself. This patient, like many others with mild or moderate liver disease, is faced with serious health threats unrelated to his HCV. Patients who are likely to die of a co-morbid condition should be counseled regarding these probabilities and consider forgoing antiviral treatment. Given the risks and discomforts of such treatment, it is not only reasonable but imperative to discuss competing risks of morbidity and mortality with our HCV-infected patients.

**RECURRENT UNILATERAL LEG EDEMA.** L.A. Orlando[1]; [1]Tulane University, New Orleans, LA *(Tracking ID #50648)*

LEARNING OBJECTIVES: 1) Recognize that clinical clues can be used to identify the most likely etiology of edema. 2) Recognize that pre-existing venous valvular damage may allow bilateral processes to localize initially to affected extremity. 3) Understand that the risk of retroperitoneal adenopathy in seminoma can be assessed by indirect indicators of tumor burden.
CASE INFORMATION: A 52 year-old male with a seminoma was admitted for his first cycle of chemotherapy. Six months prior to admission an idiopathic deep venous thrombosis (DVT) necessitated therapy with coumadin. Three months prior to admission he was diagnosed with a seminoma. The coumadin was continued indefinitely. At the time of admission he was asymptomatic. His right testicle had been surgically removed. The left testicle was normal, without any palpable masses. There was no lymphadenopathy or lower extremity edema. His

preadmission laboratory studies showed an elevated LDH and $\beta$-HCG but his AFP was normal. On the third hospital day he complained of right lower extremity pain and swelling. Examination of the right leg revealed pitting edema to mid-shin with a 70 second pit recovery time. An ultrasound revealed no new thrombus or thrombophlebitis. The INR was 2.5. His albumin was 3.8 mg/dL. The negative ultrasound prompted a search for additional causes of increased venous pressure. An abdominal and pelvic CT scan revealed retroperitoneal lymphadenopathy compressing the inferior vena cava (IVC).
DISCUSSION: Leg edema can result from increased venous pressure, decreased oncotic pressure, lymphatic obstruction or increased capillary permeability. This patient's unilateral pitting edema and high pit recovery time hinted at localized venous hypertension from either obstruction or postphlebitic syndrome. Given the history of cancer and previous DVT, we suspected a coumadin-refractory DVT or postphlebitic syndrome. The normal ultrasound and progressive symptoms ruled out our initial diagnostic suspicions and prompted further evaluation. Seminoma spreads through the lymphatic system frequently metastasizing to the retroperitoneal lymph nodes. His metastasis to the supraclavicular lymph node (stage III) and elevated tumor markers signified a high tumor burden, a risk factor for massive retroperitoneal lymphadenopathy and IVC obstruction. Although, it normally presents bilaterally, in the presence of unilateral venous valve incompetence, IVC obstruction may initially localize to the involved extremity. His CT scan confirmed this diagnosis. Venous hypertension originating above the iliac veins classically presents with bilateral findings. In patients with previous venous valvular damage as occurs after DVT, initial symptoms maybe unilateral.

**SWEATING IT OUT: A DIAGNOSTIC DILEMMA.** L.A. Orlando[1]; [1]Tulane University, New Orleans, LA *(Tracking ID #50649)*

LEARNING OBJECTIVES: 1) Evaluate fever, night sweats, and leukocytosis. 2) Manage the patient with a non-diagnostic initial evaluation. 3) Identify the probability of leukemia, lymphoma, or leukemic phase lymphoma in this setting.
CASE INFORMATION: A 35 year-old man presented after ten days of fever, night sweats, and malaise. He denied sick contacts or exposure to tuberculosis. Ibuprofen provided intermittent relief. Five months earlier he had quit abusing alcohol and cocaine. His temperature was 105.1F with a normal exam. The leukocyte count was 20 k/mm3 with 63% atypical monocytes. An extensive inpatient evaluation including EBV and CMV titers, HIV antibody, hepatitis panel, PPD, cultures, chest x-ray, and bone marrow biopsy yielded no abnormalities. An abdominal CT revealed peri-vascular lymphadenopathy. Ten days after discharge he began sweating profusely, soaking through a t-shirt within minutes. Examination at that time revealed diffuse tender lymphadenopathy and hepatomegaly. His leukocyte count had increased to 85 k/mm3 with 46% atypical lymphocytes and his hemoglobin was 8mg/dL. Readmission with a repeat bone marrow and a lymph node biopsy identified anaplastic large T-cell lymphoma (ALTL).
DISCUSSION: Fever, night sweats and leukocytosis suggest an inflammatory process such as leukemia, lymphoma, endocarditis, mycobacteria, or EBV. The diagnosis is usually easily identified after an initial clinical and laboratory investigation; however our patient remained an enigma even after an extensive and invasive work-up. In this situation a wait and see policy with close outpatient monitoring may reveal clues to the diagnosis. Markedly elevated atypical lymphocytes without concomitant lymphadenopathy is highly suggestive of lymphocytic leukemia; however, a normal bone marrow excludes this diagnosis. Lymphocyte generation occurs in two stages: production in the bone marrow and maturation in the lymph nodes, therefore a normal bone marrow implicates the lymphatic system as the source of the abnormal lymphoctyes. This constellation of findings: normal bone marrow, minimal lymphadenopathy, and abnormal peripheral lymphocytes is suggestive of a leukemic phase lymphoma. ALTL typically presents with lymphadenopathy and normal leukocyte counts, although in advanced disease there is progression to a leukemic phase. Therefore, in the setting of normal bone marrow and viral studies a high suspicion for the leukemic phase of lymphoma should be maintained.

**A CASE OF COUVADE SYNDROME.** M.K. Paasche-Orlow[1]; [1]Johns Hopkins University, Baltimore, MD *(Tracking ID #51049)*

LEARNING OBJECTIVES: Recognize the clinical presentation of Couvade Syndrome.
CASE INFORMATION: A 30 year-old male medical student with a history of intermittent reflux symptoms presented to the University health service with three days of right lower quadrant (RLQ) abdominal pain, subjective fever, nausea, and limited food intake. He had a normal bowel movement one day prior to presentation which may have partially relieved his pain, however, that morning he was "unable to even use my seatbelt" as the pain was unbearable at that point. He was anxious, afebrile, and had normal vital signs. His abdomen was soft with marked tenderness at the RLQ; there was no rebound tenderness or organomegaly and auscultation was normal. The rest of his exam was normal and there was no stool in the rectum. CT with contrast and CBC were both normal. Further discussion revealed that his wife was eight months pregnant. Discussion of his spouse's health revealed that she had presented one week earlier to her obstetrician with RLQ pain and had been given the diagnosis of round ligament pain. After a positive review of pregnancy symptoms, with food craving and leg cramps, the concept of Couvade syndrome was introduced.
DISCUSSION: Couvade syndrome is a well-described phenomenon of pregnancy symptoms in the partner of a pregnant woman. The presentation mirrors pregnancy with nausea, vomiting, abdominal pain, food cravings, weight gain, constipation, headaches, itch, muscle cramping, anxiety, insomnia, and depression. Couvade symptoms are common but are rarely appreciated by health care providers: Between 11 and 36% of men suffer from pregnancy symptoms. Retrospective chart review of the partners of women who delivered in an HMO in New York revealed that 60/267 (22%) of the men had sought care for Couvade syndrome (Lipkin M Jr, Lamb GS. The Couvade Syndrome: an epidemiologic study. Ann Intern Med. 1982; 96:509–11). While appropriate medical evaluation must be paramount, attention must be given to the psychosocial context of the presentation. Recognition of Couvade syndrome may protect patients from unnecessary diagnostic and therapeutic risks and may reduce costs. Symptoms generally resolve with childbirth (Klein H. Couvade Syndrome: male counterpart to pregnancy. Int J Psychiat Med. 1991; 21: 57–69).

**EMPACHO: AN UNUSUAL CASE OF ABDOMINAL PAIN.** R. Padilla[1]; [1]Denver Health Medical Center, Denver, CO *(Tracking ID #52087)*

LEARNING OBJECTIVES: Recognize the potential need for the use of a curandero when treating Hispanic patients to help improve health outcomes.
CASE INFORMATION: A 23 year old Spanish speaking only Hispanic male with no significant past medical history presented to an urgent care center for the third time in one month with a complaint of generalized abdominal discomfort. The patient stated that his problem began after he was stranded on the interstate highway with a flat tire. While he was stranded, he had the urge to defecate. He had to suppress this urge due to the lack of appropriate restroom facilities. The patient denied fever, chills, nausea, vomiting, diarrhea, constipation, or weight loss. There were no other exacerbating or relieving factors associated with his complaint. The patient took no medications or over-the-counter preparations regularly, he did not smoke, and he rarely drank alcohol. The patient worked as a laborer, and had been in the United States for two years after immigrating from Mexico. Physical exam revealed an anxious appearing male with normal vital signs. Physical exam was normal including his abdominal exam with heme negative stool; lab values included a CBC, SMA7, LFT's, amylase, H. pylori serology and 3-way of the abdomen, all of which were normal. The patient had received an empiric trial of H2-blockers without improvement. Upon further questioning, the patient stated that he was concerned that he had an intestinal infection because his mother had told him that this was the likely cause of his symptoms. The patient was diagnosed as having empacho and he was referred to a curandero for further evaluation and treatment.
DISCUSSION: Curanderismo is a diverse folk healing system of Latin America. It began with the Aztecan, Mayan, and Incan tribes and their religious beliefs of harmony with nature, spirit and self. These Indian tribes had many gods, and they believed that their gods punished sins with illness. As a balance, some mortals, who were spiritually chosen, were given the power to heal the wounded spirit and cure supernatural illness. This is the role of the curandero. Curanderos generally use prayer, massage, herbs, and reassurance to treat their patients, and they frequently share their patients' social class, background, language and religion. Curanderos are generally not regulated by any professional agency in the United States; therefore there is no accurate estimate of the number of curanderos practicing in the US. Empacho is a form of pseudo-intestinal obstruction that is characterized by abdominal pain, loss of appetite, constipation, or bloating that is caused by the adherence of food to the intestinal wall. It is treated by a combination of the methods commonly used by curanderos. With the ever-growing Hispanic population in the US, it is important to keep the practice of curanderismo in mind when dealing with this patient population, in order to offer culturally competent health care and eliminate racial and ethnic disparities in health care as well as unnecessary and costly testing.

**A RARE CAUSE OF DYSPHAGIA.** M. Panda[1], C. Norton[1]; [1]University of Tennessee, Chattanooga, TN *(Tracking ID #51477)*

LEARNING OBJECTIVES: Review the differential Diagnosis and work-up of Dysphagia.
Dysphagia is a common presenting symptom encountered in primary care practice. Common etiologies include esophagitis, peptic stricture, malignancy, benign tumors, motility disorders and extrinsic compression. We report a case of dysphagia secondary to an anomalous pulmonary artery. To our knowledge only one case has been reported in the adult population.
CASE INFORMATION: A 58 year-old white male complained of intermittent difficulty swallowing for 2 years prior to presentation. He complained of solids getting caught in mid chest region. There were no aggravating or relieving factors. He denied symptoms of heart burn or weight loss. He did not use tobacco or alcohol and had no significant family history. He was on hyoscyamine for 2 years for some urology complaints. Physical findings were noncontributory with no evidence of oropharyngeal abnormalities, bruits or lymphadenopathy. Treatment with H-2 blockers and proton pump inhibitors was unsuccessful. A double contrast barium esophagram revealed a 4.5 cm smooth defect involving the left anterior wall of the mid-esophagus most consistent with an intramural mass or an extrinsic mass. A contrast CT of the thorax revealed the anomalous origin of the left main pulmonary artery (PA), arising from the posterior margin of the right main PA, then coursing retrotracheal to the left hilum and displacing the esophagus to the right. The trachea remained unaffected and no evidence of hilar or mediastinal masses were found. Endoscopy confirmed a pulsatile compression of the proximal esophagus, consistent with previous findings. No other pathology was identified. The patient has done well with alteration and modification of food habits.
DISCUSSION: Dysphagia lusoria — a term first used to describe dysphagia caused by an aberrant insertion of the right subclavian artery has been described in the literature. However anomalous origin of the left pulmonary artery from the right pulmonary trunk is a rare developmental abnormality. The effects of this maldevelopment are usually seen in infants who may present with respiratory tract obstruction or recurrent pneumonias. An embryological explanation for this vascular abnormality involves the caudal migration of the laryngotracheal bud. Surgical correction is feasible. In our patient, dysphagia was secondary to the compression of the anterior esophagus as the pulmonary artery ran posterior to the trachea instead of its normal anterior course. Although this was a congenital anomaly, we hypothesize that the patient was asymptomatic until his sixth decade when the pulmonary artery may have become dilated causing symptomatic dialtation of the esophageal lumen. This could have been potentiated by the hyoscyamine. Although rare, the diagnosis of dysphagia lusoria should be entertained after commoner causes have been excluded in a patient with persistent symptoms.

**A CHALLENGING CASE OF HEPATIC FAILURE.** M. Panda[1], S. Estes[1]; [1]University of Tennessee, Chattanooga, TN *(Tracking ID #51753)*

LEARNING OBJECTIVES: 1. Recognize the differential diagnosis and work up of a case of jaundice. 2. Recognize the distinguishing features of autoimmune hepatitis from toxin mediated hepatic injury.
CASE INFORMATION: A 24 year old white male presented with a 4 week history of increasing abdominal pain and swelling with yellow discoloration of eyes and skin. He had a history of heavy methamphetamine use, no alcohol or acetoaminophen. He had presented 1

month earlier with similar complaints, bilirubin of 21 mg/dl & hepatocellular enzymes in the 2000 mg/dl range. Viral serologies were negative and his symptoms improved. On re-presentation, he had ascites, enzymes in the 200's, bilirubin of 19 mg/dl and a coagulopathy. Exam revealed jaundice,soft diffusely tender abdomen with a fluid wave. Abdominal ultrasound showed a enlarged liver and spleen with portal and splenic veins patent, ascites and no biliary dilatation. Endoscopy negated esophageal varices. ANA, anti-smooth muscle antibodies, and anti-liver/kidney microsomal (LKM) antibodies were negative. There was no hypergammaglobulinemia. Iron studies, ceruloplasmin, 24 hour urine copper, and alpha-1 antitrypsin were normal. Patient was treated for spontaneous bacterial peritonitis after a diagnostic paracentesis. Liver biopsy showed significant hepatocellular necrosis, fibrosis, cholestasis and regenerative activity. These findings represented repair in areas of submassive acute necrosis. The histiologic features were characteristic of toxin induced damage to the liver.
DISCUSSION: Auto immune liver diseases are chronic but may be undetected until an acute exacerbation. Type 1 autoimmune hepatitis (AH) is the most common, seen in adolescent females characterized by hypergammaglobulinemia and presence of ANA and/or anti-smooth-muscle antibodies. Type 2 AH occurs in young children and is classified by anti-LKM antibodies while type 3 is the least common and characterized by presence of antibodies to soluble liver antigen. Common lab and radiographic findings include elevated serum aminotransferase levels, coagulopathy, hepatosplenomegaly, and periportal lymphade-nopathy. In our patient, the absence of hypergammaglobulinemia, presence of marked jaundice and improvement of initial lab values were not characteristic of autoimmune hepatitis. Ingestion of 3,4 methylenedioxymethamphetamine (MDMA) a synthetic stimulant associated with methamphetamine abuse is associated with toxin-mediated liver injury of 2 types. One presents with hyperthermia, rhabdomyolysis,renal failure and severe liver disease shortly after ingestion. The second is characterized by delayed, often fulminant hepatitis without other systemic effects. (Ref: NEJM 2001; 344; 591 – 599). The damage may be fatal,lead to liver transplantation secondary to fulminant hepatitis or improve with supportive care only. Toxic effects of MDMA should be considered in young adults who have hepatitis-like illness without another obvious etiology and characteristic histopathology.

**PULMONARY CONTUSION PRESENTING AS PULMONARY EDEMA.** M. Panda[1], P.V. Bayyapureddy[1]; [1]University of Tennessee, Chattanooga, TN *(Tracking ID #51889)*

LEARNING OBJECTIVES: 1. Recognize the clinical and radiological features of pulmonary contusion. Pulmonary contusion usually occurs near the site of direct contact though contrecoup injuries may result in contusion on the opposite side of the ipsilateral lung or in contra lateral lung. Pulmonary contusion may exist without injury to the rib cage. We report a case of pulmonary edema secondary to pulmonary contusion.
CASE INFORMATION: A 24-year-old, previously healthy black male was brought to the emergency room after being involved in a motor vehicle accident. He lost control of his vehicle and collided against a fence. He denied any precipitating events before the accident, On presentation to the ED, he was alert oriented and slightly tachypneic with normal BP. On physical examination, tenderness to palpation over the sternal area was noted. Auscultation of the lungs revealed bilateral rhonchi in both the lung fields. Examination of the heart revealed regular rate rhythm and a third heart sound. Chest x-ray revealed pulmonary vascular congestion and ill defined air space disease in the perihilar regions bilaterally. CT scan of thorax revealed an anterior mediastinal hematoma which appeared to be secondary to sternal body fracture and marked air space disease in the lung consistent with contusion and pulmonary edema. Arterial blood gases revealed a PH of 7.42, PaCo2 of 37, PaO2 of 64, bicarbonate of 24 and base deficit of 1. Echocardiogram revealed borderline left ventricular hypertrophy and an ejection fraction of 62%, mild tricuspid regurgitation and mild pulmonary hypertension. The patient received oxygen by nasal cannula. The patient showed significant improvement clinically and radiologically. Two days later, his oxygen saturation normalized and the chest X-ray showed improving bilateral pulmonary edema with minimal residual interstial edema.
DISCUSSION: Pulmonary contusion is a common entity following trauma to the chest wall, accounting for about 17% of patients with multiple injuries. Parenchymal lung injury leads to pathophysiological changes such as increased intrapulmonary shunting, increase in the lung water and decreased lung compliance. These changes can lead to hypoxemia, hypercapnia, increased work of breathing, rapid respiratory rate, rhonchi wheezes and occasional hemoptysis. Appearances on the x-ray film after pulmonary contusion are characterized by miliary patterns of consolidation. These lesions typically appear within four to six hours of injury and clear over a few days. The extent of the abnormality seen on the chest x-ray correlates with the severity of the injury. CT scan appears to be more sensitive in diagnosing a pulmonary contusion. Management of pulmonary contusion is essentially supportive and includes pain control, fluid administration and aggressive pulmonary hygiene. Pulmonary hygiene involves periodic deep breathing, coughing and chest physiotherapy. The survival of patients with pulmonary contusion is related to the presence of associated injuries. Potential complications include pneumonia and ARDS.

**SEVERE PULMONARY HYPERTENSION IN A PATIENT WITH HIV.** M. Panda[1], T. Holden[2]; [1]University of Tennessee, Chattanooga, Chattanooga, TN; [2]university of TN, Chattanooga, TN *(Tracking ID #51924)*

LEARNING OBJECTIVES: 1. Recognize the various non-infectious conditions associated with HIV. With improved antiretroviral therapy and effective prophylaxis, HIV infected individuals have an increased life span. This has led to the recognition of non-infectious conditions such as HIV related cardiomyopathy and pulmonary hypertension (PH). 2. Recognize the approriate work-up of a case of PH.
CASE INFORMATION: A 29 y/o non-smoking black female with HIV for 9 years, presented with progressively worsening shortness of breath, orthopnea for 7 months and a dry cough for 2 weeks. She denied any illness since being diagnosed with HIV. Two weeks prior her CD4 count was 410 and viral load 1500. Her medications were Proventil and Azmacort for what was believed to be new-onset asthma. Exam revealed a pleasant afebrile tachypnic female, with a BP: 98/65mmHg, pulse 121/min regular, resp. 21/min. She had no oral lesions, JVD, clubbing or edema. Lungs had decreased air movement. She had a S3 and a localized 2/6 systolic murmur at the lower left sternal border. Rest of her exam was unremarkable. Pertinent data: ABG: 7.54/24/66/29/95%room air, EKG with sinus tachycardia and RVH. CXR showed mild cardiomegaly. Echo:moderate RVH 70%, severe tricuspid regurgitation, paradoxical motion of the septum and a pulmonary artery pressure (PAP)95mmHg. VQ scan: low probability of embolism. As other potentially reversible causes of PH were excluded, the patient was diagnosed with HIV-related PH. She did not respond to a trial of short-acting vasodilators at a right heart catheterization, and is currently on continuous prostaglandin infusion therapy with symptomatic improvement.
DISCUSSION: Since the first case described in 1987, only 130 cases of HIV-related PH have been reported. Development of PH is independent of CD4 count and use of antiretrovirals. Although the exact mechanism is not understood, it appears that alterations in the pulmonary endothelial cell homeostasis are responsible. We hypothesize that in individuals with immunogenetic predisposition, the immune system is triggered by the HIV virus to react locally in the pulmonary vasculature, leading to an excessive localized cytokine production. This results in a plexiform arteriopathy and prothrombotic state similar to that seen in Primary PH. HIV infected patients respond better to prostaglandin with a marked improvement in PAP and symptoms. A high index of suspicion should be present when a HIV infected patient presents with progressive shortness of breath and/or exercise intolerance with no evidence of infection or underlying cardiopulmonary condition. Initial work-up should include an EKG, chest x-ray and echocardiogram. If the PA pressure is elevated, other secondary causes for PH must be ruled out before the diagnosis of HIV related PH is made.

**"I GOT SWELLING DOWN THERE."** B.A. Panunti[1], L. Wild[1], L.A. Orlando[1]; [1]Tulane University, New Orleans, LA *(Tracking ID #51865)*

LEARNING OBJECTIVES: 1. Screen and diagnose patients with presentations suggestive of Hereditary Angioedema. 2. Identify atypical presentations of Hereditary Angioedema.
CASE INFORMATION: An 18-year-old female presented with swelling of her left labia minora. Intermittent recurrent swelling of her labia minora, fingers, lips and eyelids has occurred twice per month over the past ten years. Each episode lasts 4 – 5 days. She denied any temporal relation to her menses, food, or trauma. There was no dysphagia, dysphonia or dyspnea. Her father, sister, paternal grandfather, paternal uncle and 2 paternal cousins have similar symptoms. She was taking no medications and has no allergies. Physical examination was normal except for edema of her left labia minora. There were no rashes or urticarial lesions. A low C4 at 3 mg/dl, low C1 inhibitor (C1-INH) at 25 mg/dl, and a normal C1q confirmed the diagnosis of hereditary angioedema.
DISCUSSION: The diagnosis of Hereditary Angioedema should be suspected when a patient presents with angioedema and a strong family history. Although angioedema is often associated with urticaria, Hereditary Angioedema is not. It is the only known autosomal dominant complement deficiency. Two subtypes exist: Type I (85%) has both a quantitative and functional deficiency in C1-INH, while Type II (15%) has only a functional deficiency. Although edema usually affects the extremities and face, the genitalia are not an uncommon site of involvement. C4 levels are the best screening test since C4 is consumed during and between attacks. Therefore a low C4 level is suspicious for Hereditary Angioedema and should prompt further evaluation with C1q and C1-INH levels, and a C1-INH function study. The presence of a low C4, normal C1q, and either a low C1-INH level or abnormal C1-INH function confirms the diagnosis. Treatment with attenuated androgens is used for prophylaxis as it increases synthesis of C1-INH.

**PARACENTRAL SCOTOMA AND PAPILLEDEMA: NEW SYMPTOMS OF AN OLD DISEASE.** N.K. Parekh[1], L.A. Orlando[1]; [1]Tulane University, New Orleans, LA *(Tracking ID #51560)*

LEARNING OBJECTIVES: 1. Recognize that tertiary syphilis can have atypical presentations such as papilledema and paracentral scotoma. 2. Recognize that a history of treated primary syphilis does not rule out the possibility of tertiary syphilis.
CASE INFORMATION: A 68 year-old man presented with a three day history of right sided visual loss. There was no headache, scalp tenderness, jaw claudication or fever. He had a visual acuity of 20/200, a paracentral scotoma, and papilledema in the right eye. His left eye was normal, as was the remainder of his exam. His sedimentation rate was 90 mm/sec. A cranial CT, carotid ultrasound, and temporal artery biopsy were all normal. He was empirically treated with high dose prednisone for arteritic ischemic optic neuritis. Two days later the RPR and FTA-Ab returned positive at a 1:128 dilution. Further questioning, elicited a prior history of syphilis treated 48 years earlier with three penicillin injections.
DISCUSSION: Tertiary syphilis is defined by cardiac, ocular, or neurologic involvement. These symptoms may occur after decades of asymptomatic disease. A lumbar puncture is required to identify syphilis in this latent period. The classic syndromes of tabes dorsalis and general paresis are rare in the era of antibiotic therapy. Although the Argyl Robertson pupil is the typical ocular manifestation of tertiary syphilis, optic neuritis can occur, especially with concomitant HIV infection. Our patient appeared to have had appropriate therapy for primary syphilis five decades earlier. Two possible explanations for his atypical presentation are: an imperfect response to the original therapy or re-exposure during a period of partial immunity. Symptoms and signs of arteritis in a patient with a history of syphilis should prompt consideration of tertiary syphilis.

**A CASE OF GAMMAHYDROXYBUTYRATE WITHDRAWAL.** C. Payne[1], M. Panda[1]; [1]Univ of Tennessee, Chattanooga unit, Dept of Medicine, Chattanooga, TN *(Tracking ID #51455)*

LEARNING OBJECTIVES: 1. Recognize the increasing abuse of Gamma hydroxy butyrate (GHB) by body builders and others seeking its euphoric/hypnotic effect. 2. Recognize patients with GHB withdrawal and be aware of other etiologies that might explain the signs and symptoms. 3. Review of management options for patients with GHB withdrawal and the duration of supportive care.
CASE INFORMATION: A 28-year old Caucasian male was brought to the emergency department in a confused state. He was having visual and auditory hallucinations. He was

screaming and trying to get out of bed. He had to be restrained. The patient's friends give a history of steroid and GHB use. Apparently he had originally started taking the GHB for bodybuilding and became addicted to its euphoric effect. Over the past six months prior to admission, they report that he had been taking about one ounce of GHB every hour or two. They also give a history that the patient was trying to "detox" himself of the GHB and had taken his last dose about 6 hours previously. Physical exam revealed his pulse to be 136/min, blood pressure of 141/6mmHg, and temperature of 101.2F. The patient was diaphoretic with petechiae around his eyes. Pupils were about 3mm, equal, and reactive to light. Neck was supple. The rest of the exam was within normal limits. Urine drug screen was negative. CBC and CMP were within normal limits. Patient was admitted to ICU on ativan infusion, which did not relieve his agitation. He was given Phenobarbital IV and became very calm. A lumbar puncture was performed which revealed normal cell count, negative cultures, and negative cryptococcal antigen. He remained agitated and was actively hallucinating for 5 days total. Then, he became oriented and was discharged on day 7 without any residual effects.
DISCUSSION: GHB withdrawal syndrome is characterized by anxiety, confusion, delirium, insomnia, and tremor. Patients will often also have autonomic instability such as hypertension, hyperthermia, and tachycardia. Auditory, tactile, and visual hallucinations are also often seen with GHB withdrawal. The diagnosis of GHB withdrawal is based upon history of heavy GHB use and recent discontinuation of the drug. Differential diagnoses include alcohol or sedative withdrawal, infectious etiology, serotonin syndrome, thyroid storm, and pheochromocytoma. Treatment of GHB withdrawal is supportive. Benzodiazepines, barbiturates, and propofol have been used successfully for sedation. However, large doses of these medications are needed to become effective. The withdrawal syndrome usually lasts five to fifteen days. Only one death has been reported in the literature to be related to GHB withdrawal. GHB overdose has been well documented. In contrast there is minimal knowledge about GHB withdrawal. Though it is illegal to prescribe or sell GHB in the USA, it is easily available over the Internet and through precursors sold as dietary supplements. It is important to be familiar with the withdrawal syndrome to ensure early diagnosis and management.

**COMMUNITY ACQUIRED PNEUMONIA IN A MAN WITH SEVERE CHRONIC OBSTRUCTIVE PULMONARY DISEASE.** J.C. Paysse[1], J. Wiese[1]; [1]Tulane University, New Orleans, LA *(Tracking ID #51561)*

LEARNING OBJECTIVES: 1. To recognize the severity of pneumonia. 2. To stratify patients with pneumonia to different levels of care.
CASE INFORMATION: A 72 year-old man with severe COPD presented with shortness of breath and cough for two days. He denied fever, chills, or night sweats. His medications were oxygen, albuterol, and ipratropium. He had an eighty pack-year history of tobacco use.
His temperature was 97.3F, respiratory rate 20, blood pressure 97/52, and saturation 92% on 2L O2. He had crackles, bronchophony, and egophony in both lower lung fields. He had mild wheezes throughout all lung fields. Radiographs revealed bilateral opacities and apical emphysematous bulla formation with fibrotic scarring. He was treated with ceftriazone and nebulizer treatments.
Twelve hours later he developed tachypnea, hypoxia, and hypotension, requiring emergent intubation and a levophed infusion. Shortly thereafter he became asystolic; cardiopulmonary resuscitation was unsuccessful. Autopsy reported bilateral lobar pneumonia, multiple abscesses, complete parenchymal consolidation, and necrosis along all pleural surfaces.
DISCUSSION: Establishing the diagnosis and severity of pneumonia depends upon physical examination, radiography, and laboratory data. Stratifying patients with pneumonia to different levels of care should be based upon comorbid conditions and the calculated mortality rate determined by the Pneumonia Severity Index (PSI). Our patient's mortality risk was 3% at presentation but increased to 30%. Patients with pneumonia and severe comorbid disease must be regularly re-assessed during the initial phase of treatment. The physical exam and radiographs can complement the PSI in predicting prognosis.

**PERITONEAL TUBERCULOSIS IN A PATIENT WITH A PELVIC MASS.** T.T. Pham[1], P. Balingit[1]; [1]UCLA San Fernando Valley Program, Sylmar, CA *(Tracking ID #52006)*

LEARNING OBJECTIVES: 1) Recognize peritoneal tuberculosis (TB) as a cause of a pelvic mass. 2) Review features of peritoneal TB and discuss diagnosis. 3) Appreciate the diagnostic dilemmas in patients with a pelvic mass suspicious for ovarian cancer.
CASE INFORMATION: A 29 year old nulligravid female with no past medical history, who recently immigrated from Mexico, presented with 4 months of abdominal pain associated with nausea, vomiting, early satiety and 20-pound weight loss. She denied fever, chills, constipation, or diarrhea. Physical exam revealed a nondistended, but rigid abdomen that was diffusely tender to palpation. No rebound, guarding, or organomegaly were appreciated. Rectal exam revealed a hard, smooth, anterior extraluminal mass. Pelvic exam demonstrated a large midline pelvic mass. Abdominal/pelvic CT showed ascites, mesenteric lymphadenopathy, and peritoneal thickening with nodularity consistent with metastatic ovarian cancer. Lab tests included normal serum electrolytes, hematocrit of 32.0, negative PPD, negative HIV, and normal CA 19-9 and CEA levels. CA-125 was elevated at 165 (normal range 0 – 35). Diagnostic laparotomy revealed diffuse nodules spanning the entire peritoneal surfaces of the pelvic and upper abdominal sidewalls, the omentum, and the small bowel. Frozen section of a peritoneal biopsy revealed caseating and coalescing granulomas. AFB stains were positive for Mycobacteria. The patient was discharged on 4 antitubercular medications. Her CXR revealed no pulmonary disease and sputum cultures were negative for AFB.
DISCUSSION: In the US, peritoneal TB is the sixth most common extrapulmonary site. Most cases are thought to be due to reactivation of a focus within the peritoneum seeded via hematogenous spread from a primary lung focus. Symptoms occur insidiously over several weeks to months. Often presenting as nonspecific abdominal or pelvic pain, ascites, and mass with an elevated CA-125 level and anemia, this illness often mimics ovarian cancer. CT and ultrasound findings include ascites, adenopathy, and omental and mesenteric thickening. These findings as well as an elevated CA-125 do not help in differentiating peritoneal TB from cancer. Thus, it is important to maintain a high index of suspicion for this disease, especially if the above findings occur in patients in the age range of 25 – 45 who are recent immigrants, are Hispanic or African American, and/or are immunocompromised. Diagnosis is made via paracentesis with AFB smear and culture of peritoneal fluid, laparoscopy with biopsy, or laparotomy. Paracentesis may eliminate the need for laparotomy. However, culture results may take up to 6 weeks to confirm the diagnosis, which would be a detrimental delay should the patient have ovarian cancer instead of peritoneal TB. Additionally, gynecologic oncologists may be reluctant to perform paracentesis or laparoscopy on patients with suspected ovarian cancer, as recurrence can occur in the abdominal wall via the needle tract or laparoscopic port sites. Thus, laparotomy may be most helpful with diagnosis in patients who present with a pelvic mass in which ovarian cancer cannot be excluded.

**OSTEOMYELITIS FROM BACILLUS CEREUS INFECTION FOLLOWING A GUNSHOT INJURY.** A. Popykin[1], H.M. Blumberg[1], R.W. Hampton[1], S. Kripalani[1]; [1]Department of Medicine, Emory University School of Medicine, Grady Memorial Hospital, Atlanta, GA *(Tracking ID #52396)*

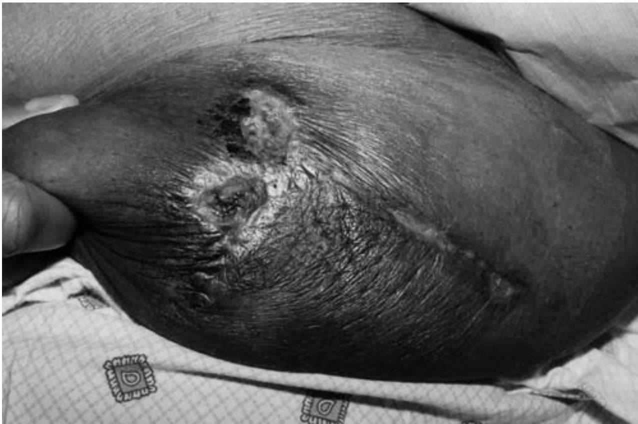
LEARNING OBJECTIVES: 1. recognize the importance of soft tissue and bone infections caused by Bacillus cereus; 2. discuss their treatment.
CASE INFORMATION: 20 year old healthy Hispanic man admitted following a gunshot injury to right leg which resulted in comminuted fracture. Nine days after open reduction and internal fixation, he was readmitted with signs and symptoms of local infection which required further debridement four times. Intraoperative cultures grew Bacillus cereus. The patient was successfully treated with 6 weeks of levofloxacin and vancomycin.
DISCUSSION: Bacillus cereus is ubiquitous in the environment and commonly causes food poisoning. It may cause severe local and disseminated infections, especially in intravenous drug users, patients with sickle cell anemia, foreign bodies in wounds, extensive trauma and immune suppression. We emphasize that isolation of Bacillus cereus in blood or other type of culture does not always mean contamination. We found a report from England of 3 cases of Bacillus cereus infection after close range gunshot injuries inflicted through clothing. Similarly to our patient, their treatment involved extensive surgical debridement and prolonged use of antibacterial agents (most commonly vancomycin and fluoroquinolones).

**GROUP B STREPTOCOCCAL ARTHRITIS IN A MAN WITH TRICHOMONAL URETHRITIS AND DIABETES.** J.U. Quintos[1], G.D. Applebaum[2]; [1]UCLA/San Fernando Valley Program, Sylmar, CA, Los Angeles, CA; [2]Olive View — UCLA Medical Center, Sylmar, CA *(Tracking ID #51152)*

LEARNING OBJECTIVES: Learning Objectives: 1) To review that Group B Streptococcus (GBS) is an uncommon cause of septic arthritis, mostly seen in neonates and gravid women. 2) To recognize that men are susceptible to GBS infection via a genito-urinary source. 3) To emphasize that diabetes is a major risk factor for invasive GBS infection in men. 4) To recognize the morbidity associated with GBS arthritis and the need for prompt intervention.
CASE INFORMATION: Case: A 38 year-old Hispanic man with poorly controlled diabetes melitus presented complaining of fever and dysuria. He described having purulent penile discharge for the past month and fever/chills for one week. On the day prior to admission, he developed severe pain in his left shoulder. There was no history of trauma to the shoulder joint. The physical exam was remarkable for a temperature of 38.8°C and extreme pain and decreased range of motion of the left shoulder joint. There was no murmur or embolic phenomena and the prostate was non-tender. The WBC was 17,000 (82% PMN), and the glucose was 441. Urinalysis was negative, however a wet mount from a penile swab showed Trichomonas infection. The patient was started empirically in ceftriaxone and doxycycline and he was given metronidazole for Trichomonas infection. Rheumatology was urgently consulted and an aspiration of the left shoulder joint yielded 5 cc of purulent fluid. On hospital day #2, blood cultures and culture of the joint aspirate were growing Group B beta-hemolytic streptococci sensitive the penicillin. The patient was started on penicillin G 3 million units IV q6 hours. The patient became afebrile and was able to range his shoulder fully by day #4.
DISCUSSION: Discussion: Group B streptococcus is a common pathogen in neonates and in gravid women, where septic arthritis is a frequent manifestation of invasive infection. Invasive GBS infection can rarely occur in adult men and most frequently afflicts patients with diabetes. GBS is pathogen of the genital tract and invasive infection usually occurs via a genito-urinary source. Septic arthritis from GBS is associated with substantial morbidity and mortality and prompt treatment with antibiotics, joint aspiration, and potential surgical intervention are critical.

**AN UNUSUAL CASE OF CALCIPHYLAXIS IN AN IMMUNOCOMPROMISED PATIENT.** P. Radhakrishnan[1], F.A. Zar[1], K. Moorthi[1]; [1]Saint Francis Hospital, Evanston, IL *(Tracking ID #50606)*

LEARNING OBJECTIVES: 1. Recognize calciphylaxis (CPX) as an unusual cause of skin ulcers in HIV infected patients (pts)with renal failure. 2. Recognize the factors which predispose to calciphylaxis (CPX), and the need for early diagnosis (Dx) and treatment (Rx).
CASE INFORMATION: A 37 year old HIV infected female pt. with end-stage-renal disease (ESRD), on maintenance dialysis, presented with painful necrotic ulcers on both breasts and left lower extremity. The lesions began as small eruptions, that enlarged over 3 weeks, and became necrotic with eschar formation. Blood tests: Serum calcium (Ca) 8.3 mg/dl, phosphorus (P) 2.5mg/dl. The Ca x P product was normal (20.75). Serum PTH was 139 pg/dl (normal 10 – 64). There was no evidence of osteomyelitis on X-ray. Wound cultures were positive for Serratia marcescens. Biopsy of the breast lesion showed CPX. The pt was treated with antibiotics and local wound care. Ca supplements were stopped and dialysate Ca was adjusted. The skin lesions regressed with medical intervention and the patient was subsequently lost to follow up.
DISCUSSION: CPX is a rare cause of necrotic ulcers seen mainly in ESRD pts with a Ca x P product> 55. The skin lesions are distributed mainly on the trunk and extremities. While the pathogenesis is unknown, elevated PTH and Ca x P product are believed to be the major



Calciphylaxis.

precipitating factors. Other risk factors include immunosuppression, malignancy and obesity. Our case is unique for the following reasons: 1. CPX occured in the setting of a normal Ca-P product. The pt's immunodeficient state, in the setting of renal failure induced hyperparathyroidism, may have predisposed to CPX. 2. The occurrence of lesions on the breast, an unusual site for CPX. Rx involves wound care, antibiotics, correction of electrolyte abnormalities and parathyroidectomy in cases of refractory hyperparathyroidism. Sepsis is a common cause of death in these patients. Conclusion: 1. CPX should be recognized as a cause of necrotic skin ulcers in HIV positive pts. with renal failure. 2. CPX can occur in the absence of an elevated Ca x P product, in the setting of immunosuppression. 3. Early Dx and prompt intervention can result in regression of the lesions.

**POST INTUBATION FEVER AND RIGIDITY — DELAYED MALIGNANT HYPERTHERMIA.** P. Radhakrishnan[1], M. Mouammar[1], S. Al-Saghbini[1]; [1]Saint Francis Hospital, Evanston, IL *(Tracking ID #50637)*

LEARNING OBJECTIVES: 1. Recognize that malignant hyperthermia (MH) can present upto 24 hours after initial exposure to the offending drug. 2. Recognize the pathophysiology of MH, the need for early diagnosis (Dx) and the various treatment (Rx) modalities.
CASE INFORMATION: A 69 year old male with history of stroke and COPD, presented with hypoxic respiratory failure. He was intubated after pretreatment with succinylcholine. Twenty four hours after transfer to the ICU, he was comatose, and had board like rigidity, most noticeable in the face and neck. He was tachycardic, febrile (106 deg F), and had relative paucity of sweating. He was initially empirically treated with intravenous methylprednisolone for COPD, diltiazem for tachycardia and antibiotics for presumed meningitis. Laboratory data: WBC 10,900/cumm, myoglobin 798ng/ml and CPK 2758 IU/L, blood gases -respiratory and high anion gap metabolic acidosis. CT scan (head) and spinal fluid analysis were normal. A Dx of MH was made and Rx with dantrolene sodium was initiated. The pt's mental status and rigidity dramatically improved following administration of dantrolene. He was subsequently extubated, and discharged from the ICU.
DISCUSSION: MH is a rare disorder of the skeletal muscle, seen mainly in anesthetized pts, after administration of neuromuscular blockers and inhalational anesthetic agents. These pts have mutations in the ryanodine or dihydropyridine receptors which cause a rapid rise in intramyoplasmic Ca and a hypermetabolic state in the muscle fibre when exposed to these drugs. Initial signs include tachypnea, tachycardia, masseter spasm, followed by fever and rigidity, usually occurring within minutes after administration of the offending drug. It is rare for MH to manifest beyond six hours of exposure to the drug. Our case is unique in that MH occurred 24 hours after exposure to succinyl-choline. The management is mainly supportive, with dantrolene sodium being the definitive Rx. Other drugs which have been used with variable success are steroids, Ca channel blockers and procainamide. In our pt, MH was considered only after the exclusion of meningitis and pontine bleed thus leading to a delay in Dx. Despite the lag, the favourable outcome may have been due to concurrent administration of steroids and Ca channel blockers. It is important for internists to be familiar with this syndrome in this day and age of artificial life support systems. Conclusions: 1. MH can manifest upto 24 after exposure to the offending drugs. 2. As the use of neuromuscular blockers increases, it is important to consider MH in the differential Dx of post-intubation hyperpyrexia. 3. While the definitive Rx of MH is dantrolene,there may be other therapeutic options like steroids, Ca channel blockers and procainamide, which may influence the course of this uncommon disorder.

**A VERY SEVERE CASE OF DIARRHEA.** G. Ramani[1], R. Granieri[1]; [1]University of Pittsburgh, Pittsburgh, PA *(Tracking ID #48767)*

LEARNING OBJECTIVES: 1) To recognize iron deficiency as a complication of celiac disease(CD). 2) To diagnose CD using endoscopic and laboratory data 3) To manage the treatment of CD.
CASE INFORMATION: A 47 year old man presented with profuse, watery diarrhea of 3 – 4 days and dyspnea. He had been having 4 – 5 bowel movements per day, but the frequency had increased tremendously over this period of time. He denied fevers, abdominal pain, recent travel, antibiotic use, or dietary changes. Past medical history is significant for a similar episode 1 year earlier, and a thorough workup that yielded no specific diagnosis. On physical examination, he was orthostatic and tachypnic. Abdomen was soft, nontender, nondistended, with normal bowel sounds. Laboratory studies demonstrated an iron deficiency anemia, profound coagulpathy with an INR of 8.0, non anion gap metabolic acidosis, and folate deficiency. The patient responded well to vitamin K administration, and vigorous fluid rehydration. Serologic testing was significant for positive antiendomysial, tissue transglutaminase, and antigliadin antibodies. Endoscopy was performed, and small bowel biopsies demonstrated villous atrophy and lymphocytic inflammation of the mucosal epithelium, confirming the diagnosis of celiac disease (CD).
DISCUSSION: CD is an inflammatory disease of the small bowel that results from gluten ingestion in genetically susceptible individuals. The prevalence is estimated to be 1 in 200 individuals. An autoimmune reaction against the villi of the small intestine results in villous atrophy, and subsequent malabsorption of iron, calcium, folate, and fat soluble vitamins (A,D,E,K). These patients often suffer from iron deficiency anemia, are at increased risk for osteoporosis, and may demonstrate coagulopathy. Data suggests that up to 8.5% of iron deficient patients who do not respond to oral iron replacement may have CD. CD has been shown to increase the risk for small bowel lymphoma. While endoscopy with biopsy demonstrating the characteristic findings remains the gold standard for diagnosis, serologic testing is gaining validity as a potential diagnostic tool. The reported sensitivities and specificities for the antiendomysial antibodies are between 60 – 100% and 95 – 100%, and for the antigliadin antibodies 31 – 100% and 85 – 100%, respectively. The relatively new tissue transglutaminase antibody has a reported sensivity of 98% and a specifity of 98%. The cornerstone of treatment remains the gluten free diet. Strict abstinence from all foods containing gluten, including wheat, rye, and barley, is the only effective therapy. Villious architecture has been demonstrated endoscopically to slowly return to normal. If the diet is effectively followed, most patients have almost complete resolution of symptoms, including correction of iron deficiency anemia. Rigid adherence to this diet reduces the risk of small bowel lymphoma.

**HEADACHES AND LOW PLATELETS: A CASE OF THROMBOTIC THROMBOCYTOPENIC PURPURA.** G. Ramani[1], R. Granieri[1]; [1]University of Pittsburgh, Pittsburgh, PA *(Tracking ID #48775)*

LEARNING OBJECTIVES: 1) To recognize the signs and symptoms of Thrombotic Thrombocytenic Purpura (TTP). 2) To recognize the essential role of plasmapheresis in the treatment of TTP.
CASE INFORMATION: The patient is a 29 year old female without significant past medical history who presented to the hospital with increased bruisability, fatigue, and dyspnea. Her symptoms began approximately 2 weeks prior when she noted epigastric discomfort and nausea. She was treated conservatively but later developed headache, left facial numbness, and tingling of the extremities. She denied fevers or chills. Physical examination demonstrated subconjunctival hemorrages and periorbital petechiae. The remainder of the examination, including neurologic examination, was unremarkable. CT scan of the head was negative. Laboratories showed a hemoglobin of 6.4, platelet count of 13,000, and WBC of 13,700 with normal differential. LDH was elevated at 3299. Total bilirubin was 2.0, with the entire fraction being unconjugated. Renal function was normal. Blood smear showed numerous schistocytes, suggesting a diagnosis of thrombotic thrombocytopenic purpura. The patient was transfused packed red blood cells, responded well to daily plasmapheresis, and was discharged to home in 4 days with a platelet count of 151,000.
DISCUSSION: TTP is a multisystem disease that is usually idiopathic in nature. The pathologic hallmark of disease is the presence of platelet and fibrin thrombi in the small blood vessels of various organs. The pathophysiology is believed to be related to inability to cleave von Willebrand's factor (vWF), which then accumulates in these blood vessels. The classic pentad of signs and symptoms consists of fever, azotemia, microangiopathic hemolytic anemia, neurologic complaints, and thrombocytopenia. However, all five symptoms are present in only 24% of patients, and only microangiopathic hemolytic anemia and thrombocytopenia are now required to make the diagnosis. Neurological complaints are present in approximately 60% of patients. Abdominal pain, reflecting microvascular obstruction and subsequent bowel ischemia, is the chief complaint in 35% of patients. A blood smear demonstrating schistocytes is essential to the diagnosis. Hemolysis and thrombocytopenia result from a shearing phenomenon due to the polymerized vWF. Prompt diagnosis and initiation of treatment is critical. Since the development of plasmapheresis, the mortality from TTP has declined from 90% to 20%, with most deaths occurring early in the course of illness or before adequate treatment has been started. Plasmapheresis is initiated daily until platlet count and LDH normalize, and is then gradually performed at increasing intervals of time. Platelet transfusions are avoided because they can exacerbate symptoms. Steroids, vincristine, and splenectomy are reserved for relapses and refractory cases. With adequate treatment, the prospects for complete remission with disease free survival are good.

**PAIN IN THE BUTT.** C. Ramos[1], T. Modilevsky[1], A.G. Gomez[1], E.F. Yee[1]; [1]UCLA-San Fernando Valley Program, Los Angeles, CA *(Tracking ID #50757)*

LEARNING OBJECTIVES: 1. Recognize spinal infections (vertebral osteomyelitis and epidural abscess) as an etiology of hip or buttock pain, as well as back pain. 2. Review the clinical features and evaluation of spinal infections. 3. Recognize the importance of considering this diagnosis even in the absence of the usual risk factors.
CASE INFORMATION: A 60 year old man with a history of hypertension presented to an outside hospital with one day history of sudden onset of right buttock pain while getting out of his car. Evaluation was remarkable for fever of 39.2 C, WBC 16.1, urinalysis with occassional WBC and few bacteria. CXR was negative. Blood and urine cultures were sent. He was transferred to our hospital with the diagnosis of pyelonephritis. Our exam revealed a febrile, diaphoretic, ill looking man with severe right buttock pain. Pertinent physical findings were poor dentition, no murmurs, no costovertebral angle tenderness, and positive mild right paraspinal tenderness in the lumbar area. Right hip/buttock had no evidence of infection or tenderness. Range of motion was full and straight leg raise tests negative. Prostate was normal. Neurologic exam was normal. Gait was abnormal due to pain. ESR was 34, CT urogram and hip X-rays were negative. Blood cultures came back positive for Staph areus. Urine culture was negative. Although he denied IV drug use, he was started on nafcillin, gentamicin, and vancomycin for possible endocarditis. Indium scan was negative. On the fifth hospital day he

became incontinent of urine and complained of leg weakness. Exam revealed a new heart murmur, 3-4/5 strength of both legs, and loss of rectal tone and deep tendon reflexes. Stat MRI showed a large epidural abscess with severe spinal stenosis and L4-L5 osteomyelitis. Patient was immediately transferred for neurosurgical evaluation and intervention.
DISCUSSION: Epidural abscess and vertebral osteomyelitis are uncommon but devastating conditions that are often and easily misdiagnosed without a high index of suspicion. Typical risk factors include IV drug use, alcohol abuse, age over 50, diabetes and other immunocompromised states. If untreated or unrecognized, vertebral collapse, cord compression and paralysis can result. The most common organism is Staph aureus. Abnormalities of bowel/bladder functions and motor/sensory deficits suggest spinal cord involvement. Laboratory studies are of limited value. Plain radiographs are normal early in the disease. Nuclear medicine studies are not specific. MRI is the best imaging modality in detecting osteomyelitis and epidural abscesses. CT myelogram is a lesser alternative to MRI. Treatment includes long term IV antibiotics and neurosurgical/orthopedic evaluation if there is spinal cord compression. The first step in making this diagnosis is to have a high index of suspicion.

**A CASE OF CONFUSION: CALCIUM AND COCCIDIODES.** N. Ratanawongsa[1], K. Bibbins-Domingo[1], A. Fernandez[1]; [1]University of California, San Francisco, San Francisco, CA *(Tracking ID #50282)*

LEARNING OBJECTIVES: 1. Recognize the clinical presentation of hypercalcemia. 2. Workup and manage granulomatous disease as a cause of hypercalcemia.
CASE INFORMATION: Mr. V. is a 46 year old HIV-negative Filipino man. Two months prior to admission, he presented with altered mental status (AMS) due to communicating hydrocephalus caused by Coccidiodes immitis meningitis. After six weeks on high-dose fluconazole and a temporary extraventricular drain, he could respond to name, produce short sentences, and assist in ADLs and transfers. Two weeks later, at a skilled nursing facility, he was somnolent and nonverbal, with nausea, vomiting, poor oral intake, and polyuria. Past medical history included tonic-clonic seizure, hepatitis C, and polysubstance abuse. Medications were fluconazole 800mg PO qd, phenytoin 200mg PO qhs, and a multivitamin. On exam, he was afebrile but tachycardic. He was alert, agitated, and unable to follow commands. His exam was notable for dry mucous membranes, flat jugular veins, and no focal abnormalities on neurologic exam. Laboratory studies showed Na 157, K 5.4, BUN 56, Cr 3.0, calcium 14.5, and phosphate 5.9. Head CT showed stable ventricular dilatation. Work-up revealed a suppressed PTH level at 8 and normal cosyntropin stimulation test, TSH, bone scan, and serum and protein electrophoresis. He had a normal 25-hydroxyvitamin D (25(OH)D) level and an elevated 1,25-hydroxyvitamin D (1,25(OH)2D) level of 73 (normal 15 – 60). Mr. V. received aggressive intravenous hydration and subcutaneous calcitonin 250 U bid for two days. His multivitamin was discontinued. His calcium and creatinine normalized, and his mental status and appetite improved. He is now conversant and ambulatory in rehabilitation care.
DISCUSSION: Hypercalcemia is an important cause of AMS. As Mr. V.'s case illustrates, AMS with poor oral intake, nausea, abdominal complaints, and excessive diuresis should prompt a check of serum calcium. Acute renal failure and hypernatremia, from hypercalciuric diuresis, can worsen AMS. While most hypercalcemia in hospitalized patients is due to malignancies, granulomatous disease can cause unregulated conversion of 25(OH)D to 1,25(OH)2D in granuloma-associated macrophages, leading to increased gastrointestinal absorption and bony resorption of calcium. The incidence of hypercalcemia in granulomatous disease is unknown, with reported rates of 2 to 63% in sarcoidosis. The diagnosis requires a suppressed PTH level and an elevated 1,25(OH)2D level. Initial treatment includes volume resuscitation and the reduction of bony resorption using calcitonin and bisphosphonates. Management of hypercalcemia in granulomatous disease also requires treating the underlying disease and reducing the formation of 1,25(OH)2D. In sarcoidosis, prednisone 20 to 40mg PO qd has been used to decrease 1,25(OH)2D, but this has not been studied in disseminated fungal diseases, which may worsen with systemic steroids.

**WHEN THE CURATIVE TREATMENT BECOMES FATAL: DISCLOSURE OF ANOTHER PHYSICIAN'S MEDICAL ERROR.** T. Reittinger[1], P. Kaboli[1]; [1]University of Iowa, Iowa City, IA *(Tracking ID #50612)*

LEARNING OBJECTIVES: 1. Recognize bleomycin toxicity from clinical manifestations and diagnostic evaluations. 2. Appropriately manage the disclosure of another physician's medical error.
CASE INFORMATION: A 30 year-old male smoker with stage II testicular cancer was admitted to the ICU with bleomycin-induced lung injury with progressive deterioration. The patient was diagnosed in May 2001 with testicular cancer and underwent right orchiectomy followed by 3 cycles of bleomycin, etoposide, and cisplatin (BEP). Pulmonary function tests (PFTs) after the first cycle revealed a 14% reduction in DLCO from baseline. During the second cycle, the patient complained of worsening dyspnea on exertion and dry cough. In spite of his symptoms and PFTs, he completed all 3 BEP cycles. After the third cycle, PFTs revealed 37% DLCO reduction. Chest x-rays (CXR) were normal. Ten days after his last dose of bleomycin the patient presented to his oncologist with severe dyspnea. Chest CT revealed ground glass infiltrates and he was started on prednisone. Lung biopsy one month later revealed diffuse alveolar damage with organization and fibrosis. His symptoms worsened and he required intubation and transfer for further management. Despite aggressive ICU management, the patient died 14 days later. The patient and his family were unaware of the avoidable error. The primary physician was encouraged to disclose this information to them.
DISCUSSION: Failure to recognize the manifestations of bleomycin toxicity led to the patient's death. Symptoms occur within 4 – 20 weeks of drug administration and include dyspnea, cough, tachypnea, fever, and cyanosis. It is recommended that PFTs be performed bimonthly, with discontinuation of the drug if DLCO is reduced significantly from baseline. Other diagnostic tests (CXR and CT) lag behind clinical symptoms and should not be used to rule out lung injury. For patients with testicular cancer who smoke or have other risk factors for toxicity, 4 cycles of etoposide and cisplatin, or 3 cycles of ifosfamide, etoposide, and cisplatin, may be as effective as 3 cycles of standard BEP. Disclosure of a medical error committed by another physician is difficult for both physicians involved, yet the ethical obligation of full disclosure and its benefits outweighs any negative consequences. Disclosure of medical errors enables the patient to obtain additional medical service, as well as obtain compensation. It can also help maintain a trusting relationship between the physician and the patient. When a second physician discovers the medical error of the primary physician, he should encourage the primary physician to disclose the error to the patient. If the primary physician is unwilling to disclose the information, the second physician is obligated to inform the patient. Adherence to the ethical obligation of error disclosure results in professional behavior that improves overall patient care.

**PERSISTENT ANAPHYLAXIS AND DERMATITIS AFTER GOLYTELY INGESTION** **HEATHER R. RIGGS, MD, STEVEN J DURNING, MD (MEMBER) AND RONALD L COX MD. 74TH MEDICAL GROUP, WRIGHT-PATTERSON AIR FORCE BASE, OH.** H. Riggs[1], S. Durning[1]; [1]Uniformed Services University of the Health Sciences, WPAFB, OH *(Tracking ID #51921)*

LEARNING OBJECTIVES: Recognize the clinical features, possible pathogenesis, and treatment of this rare condition. Distinguish persistent anaphylaxis from anaphylaxis of other etiologies.
CASE INFORMATION: CASE: A 33 year-old female who was NPO for colonoscopy for approximately 20 hours, presented with persistent hives and oropharyngeal angioedema approximately 15 minutes after ingesting GoLytely. These symptoms worsened with further ingestion of GoLytely, but promptly resolved after being given diphenhydramine, prednisone, and cimetidine in the emergency room 45 minutes after onset. The next day, approximately 20 hours after initial ingestion of GoLytely, these symptoms returned as well as tongue swelling. She was administered epinephrine, diphenhydramine, and IV methylprednisolone, and was admitted for observation. Between scheduled dosing of prednisone, diphenhydramine, and ranitidine, recurrent episodes of hives were noted which gradually decreased in severity. Her physical exam was also notable for follicular dermatitis which persisted for seven days after ingesting GoLytely.
DISCUSSION: GoLytely (Braintree) is a commonly used bowel cleansing regimen given before surgery and endoscopic procedures. The active ingredients which include polyethylene glycol, sodium bicarbonate, and potassium chloride induce diarrhea by creating an osmotic gradient across the bowel wall and thus inducing net fluid secretion into the lumen. Artificial flavorings are also added to make the solution palatable. We report a case of persistent anaphylaxis after ingestion of GoLytely. To date, fewer than 10 such cases have been reported in the literature. As in prior case reports of anaphylaxis with GoLytely, our patient experienced persistent anaphylaxis and dermatitis suggestive of an IgE-mediated immediate hypersensitivity reaction.

**PERNICIOUS ANEMIA AND PANCYTOPENIA: A PERILOUS PREDICAMENT.** K.R. Robinson[1], C.T. Ko[1], D.W. Brady[1]; [1]Emory University, Decatur, GA *(Tracking ID #52011)*

LEARNING OBJECTIVES: 1. Recognize pancytopenia as a presentation of pernicious anemia. 2. Diagnose and treat B12 and folate deficiency.
CASE INFORMATION: A 49-year-old African American female presented to the emergency room with progressively worsening fatigue, dyspnea on exertion, and night sweats for 2 months. She also noted difficulty thinking and numbness in her fingers over approximately the same time period. She reported being diagnosed 14 years ago with B12 deficiency, which had been treated with B12 injections until three years prior. She was currently being treated for her anemia with only iron and folate. Review of her medical records revealed B12 deficiency confirmed by Schillings test part I. On physical exam she was an ill-appearing female with a temperature of 38.0°C, conjunctival pallor, and a II/VI systolic murmur at the left upper sternal border. Her only neurological deficit consisted of minimal decrease to light touch over the distal fingertips bilaterally. Initial laboratory evaluation revealed white blood cells 2500/ mm3 (21N, 71L, 4M), hemoglobin 9.6 g/dl, hematocrit 27.6%, platelets 61,000/ mm3, MCV 126mm3, reticulocytes 1.1%. She was subsequently admitted for pancytopenia and empirically treated for neutropenic fever with ceftazidime. Subsequent cultures did not grow any identifiable organism. Anemia studies showed B12 37 pg/ml, folate 20 mg/ml, serum iron 14 mg/dl, iron saturation 6%, TIBC 223 mg/dl, transferrin 178 mg/dl, ferritin 375 ng/ml. Peripheral smear showed rare hyper-segmented neutrophils, macrocytosis, and scant platelets. Antibodies to intrinsic factor and parietal cells were sent, and the patient was treated with both B12 and folate. Two months later in outpatient follow up, her laboratory studies showed white blood cell count 7200/mm3, hemoglobin 12.0 g/dl, hematocrit 36.5%, platelets 315,000/mm3, MCV 96mm3, B12 1131 pg/ml. Antibodies to intrinsic factor were positive, confirming the diagnosis of pernicious anemia.
DISCUSSION: The most common cause of B12 deficiency is pernicious anemia. There is a wide spectrum of clinical presentation including hematological, neurological, and gastrointestinal manifestations. This case illustrates the severity of hematological changes which may be observed in chronic B12 deficiency. In the evaluation of megaloblastic anemia, it is imperative to diagnose and treat both B12 and folate deficiency in order to prevent further irreversible neurological sequelae.

**THE EATING DISORDER THAT WASN'T: COLITIS.** T.M. Rohr-Kirchgraber[1], T. Tuncer[1]; [1]State University of New York Upstate Medical University, Syracuse, NY *(Tracking ID #51746)*

LEARNING OBJECTIVES: Recognize that the diagnosis of an Eating Disorder(ED) can be complex.
CASE INFORMATION: A 23 yo, 5′6″ female initially presented with LLQ pain thought secondary to an ovarian cyst. She was noted to have a BMI of 16, suspected iron deficiency anemia with a Hct of 34 and an MCV of 77. She denied anorexia or bulimia sypmtoms, described intermittent episodes of diarhhea and abdominal pain. Over the next year she was noted to have decreasing weight (BMI 14), amenorrhea, peristent anemia and low albumin. Her TSH, FSH/LH, BMP were WNL. She was seen by a nutritionist and counseled on eating disorders. She was adamant that she did not have an eating disorder and would intermittently complain of diarrhea and abdominal pain that she attributed to various foods. After one year of

abovementioned symptoms she presented acutely with abdominal pain and fever and was found on colonoscopy to have Colitis with microperforations of the colon.
DISCUSSION: The psychological obsession with weight is the most reliable historical guideline in diagnosing an Eating Disorder (ED) and ruling out other medical causes. In this case the patient agreed that she was too thin and did actively try to eat more. Iron deficiency anemia especially with the amenorrhea, tachycardia, and episodes of diarrhea are not characteristic of an ED. While ED's are on the rise in this country and providers must be aware to look for the signs and symptoms that would suggest an ED, other medical conditions should always be considered. The differential diagnosis includes Addison's disease, diabetes mellitus, panhypopituitarism, hyperparathyroidism, hypo or hyperthyroidism, Celiac disease, Crohn's disease, intestinal parasitosis, tuberculosis, AIDS, lymphoma, hypothalamic tumor, schizophenia, and primary major depression. Laboratory tests should be individualized. Some patients require fewer tests while others require a more exhaustive search.

**ADRENOLEUKODYSTROPHY PRESENTING AS MULTIPLE SCLEROSIS WITH FEVER AND LEG WEAKNESS.** T.M. Rohr-Kirchgraber[1], J. Bhattarai[1]; [1]State University of New York Upstate Medical University, Syracuse, NY *(Tracking ID #51435)*

LEARNING OBJECTIVES: Recognize when to pursue other possibilities when the history doesn't add up.
CASE INFORMATION: A 29 y/o man carrying a diagnosis of multiple sclerosis was admitted with 2 days of fever, shaking chills and generalized weakness. PMH: Bilateral lower extremity weakness and numbness x 11 yrs. Investigated '92 no definitive diagnosis. Investigated '00, diagnosis of MS made. MS complicated by leg weakness requiring a wheelchair x9 yrs, neurogenic bladder x8 months and erectile dysfunction x1 yr. Meds: Tizanide 2 mg bid, ditropan 5 mg tid. PE: ill-looking man, T 40 C, BP 93/53, HR 112/min, RR 16/min, pulse ox 99%RA. Exam remarkable only for a small superficial decubitus ulcer on the sacrum, strength of 2/5 in lower extremities, decreased patchy pinprick lower extremities, increased DTR's with upgoing plantar reflexes bilaterally. Data: WBC 18.7 – 85% segs, 11% bands,5% lymphs, ESR 56, CRP 39.5, Na 128, K 4.5, Cl 91, HCO3 25, BUN 26, Creat 1.1, AST 37, ALT 48, ALP 91, T. bili 0.5. UA 5 WBC's, 4 RBC's; ANA, anti DS , Rheumatoid factor, HIV1 and HIV 2, HTLV CXR, CT Abd, CT Thorax, TEE and MRI spine all negative. CT Pelvis-perineal inflammmation, MRI brain foci of demyelination in frontal lobes. HOSPITAL COURSE: IV fluids and antibitotics given, all cultures remained negative and fever continued while hypotension worsened. A diagnosis of adrenal insufficiency was made and with steriods he improved remarkably. Very long chain fatty acids level came back high confirming the diagnosis of adrenoleukodystrophy.
DISCUSSION: His MRI and history were inconclusive for MS. 80% of MS patients have a relasping and remitting form. Primary Progressive MS presents with slowly evolving upper-motor neuron syndrome of the legs with gradual worsening and eventual quadripaesis, cognitive decline, visual loss, brain stem syndrome, cerebellar, bowel, bladder and sexual dysfunction. In MS, high temperatures can exacerbate the disease. ALD is a sex-linked recessive disorder associated with cerebral demyelination and adrenal disease. The neonatal form has severe complications: early and severe psychomotor retardation, seizures, retinopathy, hepatomegaly, and dysmorphic featuters. The X-linked form has two types, Childhood and Adrenomyeoloneuropathy. Childhood:normal behavior until ages 4 – 8, progressive cognitive decline, chronic vegetative state. Adrenomyeoloneuropathy: young men, progressive paraparesis, bladder dysfunction, primary adrenal insufficiency. Diagnosis is made by noting widespread demyelination in the CNS and periperal myelin and high levels of very-long-chain-fatty acids in blood, tissue, or cultured fibroblasts. The diagnosis of adrenal insuffiency led to the eventual diagnosis of ALD. Although ALD is rare, the possibility of having a diagnosis (like MS), that is incorrect does occur. Just because it says so in the notes, doesn't make it correct. If the symptoms or history don't fit, you must continually challenge yourself to look for other possibilities.

**TOO SALTY: HYPERNATREMIA IN THE PATIENT WITHOUT ACCESS TO WATER.** A.B. Rosen[1]; [1]University of California, San Francisco, CA *(Tracking ID #51402)*

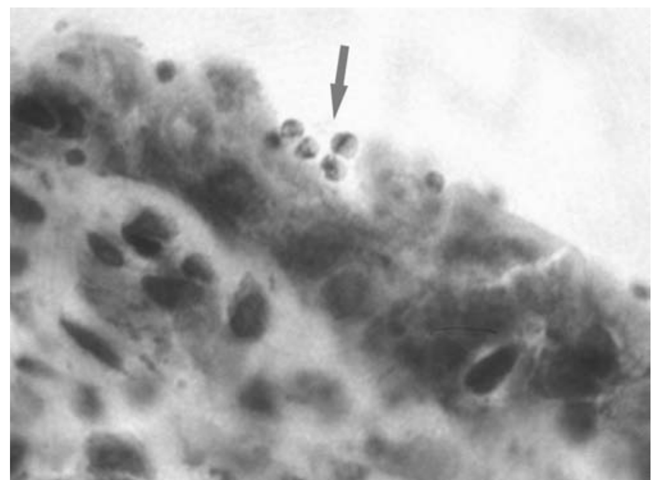
LEARNING OBJECTIVES: 1) Review the differential diagnosis and workup of hypernatremia. 2) Manage diabetes insipidus.
CASE INFORMATION: A 59-year-old homeless alcoholic man with a history of multiple head traumas was brought to the ER for altered mental status. Initially he appeared intoxicated and was unable to give a history. He was febrile, tachycardic, and minimally responsive. He had a previously documented left-sided hemiparesis, a supple neck, and a 2/6 systolic murmur. He had a WBC count of 32, an elevated AST, a sodium of 148, and bacteria and WBC in his urine. Two sets of blood cultures were drawn and he was started on levofloxacin for a presumed UTI v. aspiration pneumonia. On hospital day #2 the patient's blood cultures grew gram-positive cocci. Given his bacteremia and murmur, a transesophogeal echo was arranged to evaluate for endocarditis. He was made NPO for the procedure and his IV fell out overnight, so that he received no hydration for 12 hours. The next morning his sodium was 154 and he was very thirsty. The patient was given IV fluids at a rate to correct half of his free water deficit in 24 hours, but the patient's sodium did not correct. His urine osms were 214, which was inappropriately low given his hypernatremia. This suggested that the pt was not able to concentrate his urine. A water deprivation test was done and the patient was found to have diabetes insipidus (DI). The patient was given dDAVP and his urine osms rose from 201 to 655, suggesting central DI. A brain MRI ruled out a pituitary lesion as the cause. He was treated with dDAVP and his hypernatremia resolved.
DISCUSSION: Hypernatremia is a disorder of water homeostasis. Serum sodium and osmolality is regulated tightly by ADH, which is secreted by the pituitary and acts to increase water resorption in the kidney and to stimulate thirst. In order to have hypernatremia, there must be net water loss or net sodium gain. A person with an intact thirst mechanism does not become hypernatremic unless that person does not have access to water. This occurs most frequently in young children and unconscious or altered patients. Care must be taken when treating hypernatremia because rapid correction can result in the swelling of brain cells and cerebral edema. A differential for hypernatremia includes hypertonic sodium gain (rare), hypotonic fluid losses without appropriate free water replacement, DI, and hypodipsia. The diagnosis of DI should be entertained if a patient is hypernatremic, but producing a dilute urine with urine osms > 250. Workup for DI includes a water deprivation test, in which serum and urine osms are measured regularly and a diagnosis of DI is made if serum osms exceed 295 in the face of a dilute urine. In central DI, which is a deficiency of ADH, the pt's serum sodium will correct with the administration of dDAVP. In nephrogenic DI, which is an ADH-resistant state, the serum sodium will not correct with dDAVP. When central DI is identified, a pituitary tumor should be ruled out with brain imaging. The treatment for central DI is daily use of dDAVP.

**JUST CHF . . . ?** D.A. Rosnack[1], M. Decker[1], S. Venuturupalli[1], W. Ching[1]; [1]UCLA-San Fernando Valley Program, Sylmar, CA *(Tracking ID #46388)*

LEARNING OBJECTIVES: 1-Recognize Amyloidosis as an uncommon cause of CHF. 2-Discuss the utility of different diagnostic tests in Amyloidosis.
CASE INFORMATION: 47 y/o latino male presented to clinic for tongue/throat pain and sub-mandibular lymphadenopathy after a wisdom tooth extraction. Symptoms persisted despite antibiotic treatment. An FNA of the "lymph noderdquo; was performed which showed normal salivary glandular tissue. Over the next six months a work-up was performed including CBC, LFT's, chemistries, PPD, RPR, and HIV. The only abnormal lab finding was an elevated LDH. During this time, he developed dyspnea on exertion and pleuritic chest pain. Exam and x-ray were consistent with CHF. A CT-scan of the neck/chest/abdomen/pelvis was normal except for small pleural effusions. An ECHO showed global hypokinesis, concentric LVH, diastolic dysfunction, and EF of 50%. He was subsequently admitted for worsening CHF. On physical exam blood pressure was 92/65, oropharynx had significant macroglossia, and there was evidence of CHF. CBC, chemistries, and liver functions were normal except for albumin of 2.3 and continued elevation of LDH. A urinalysis showed 3+ protein (24 hour protein was 1.1 grams) and ANA was positive 1:80 with homogenous pattern. Repeat ECHO showed, marked concentric LVH, with global hypokinesis, restrictive filling defect and a sparkling appearance to the myocardium, suggestive of amyloidosis. An abdominal fat pad biopsy was negative, but a subsequent kidney biopsy revealed birefringent material. Bone marrow was also positive and showed plasma cell dyscrasia with lambda light chain restriction.
DISCUSSION: Primary amyloidosis (AL) presents commonly as CHF with echo showing concentric LVH, restrictive pattern, and sparkling myocardial appearance. Nephrotic syndrome, autonomic/peripheral neuropathy, hepatomegaly, easy bruising, macroglossia, and hypoadrenalism can all be seen. Macroglossia is exclusively seen in the AL subtype. Amyloid stains congo red positive and has an apple-green birefringent color under polarized light. An easy to perform abdominal fat pad biopsy is 85% sensitive for AL. Other biopsy sites such as rectal and gingival are up to 80% sensitive, while bone marrow biopsy is about 50% sensitive. Once the presence of amyloid is confirmed, evaluating for plasma cell dyscrasias via bone marrow biopsy and SPEP/UPEP should be undertaken to confirm AL type. Treatment for primary amylodosis includes IV melphalan with autologous bone marrow transplant and a 65% remission rate is seen in patients with good cardiac function, therefore early diagnosis prior to cardiac dysfunction is important.

**CHRONIC INFECTIOUS DIARRHEA IN AN IMMUNOCOMPROMISED PATIENT.** B.J. Sadegi[1], J.A. Pino[1]; [1]New Hanover Regional Medical Center, Wilmington, NC *(Tracking ID #51306)*

LEARNING OBJECTIVES: 1. Recognize the pathogens that cause chronic infectious diarrhea in the immunocompromised patient. 2. Diagnose Cryptosporidiosis as a cause of chronic diarrhea. 3. Treat Cryptosporidiosis in the immunocompromised patient.
CASE INFORMATION: A 36 year-old male recently diagnosed with HIV, CD4 count of 42 and viral load of 271,000, presented with a four-week history of severe, watery, non-bloody diarrhea, with up to 20 bowel movements a day. The patient complained of persistent fever, nausea, and a 20-pound weight loss since his diarrhea began. On physical exam, he was cachectic and had diffuse abdominal tenderness to palpation. Stool studies were negative for white blood cells, ova and parasites, C. difficile toxin, and Giardia antigen. Due to the patient's progressive clinical deterioration, esophagogastroduodenoscopy and biopsy were performed while acid-fast stains of the stool were pending. Distal duodenal biopsy revealed the diagnosis of Cryptosporidiosis with an infiltrate of inflammatory cells in the lamina propria.



In addition to antiretroviral therapy, the patient was placed on paromomycin and loperamide with improvement of symptoms after one week.
DISCUSSION: In the immunocompromised host, the etiology of chronic infectious diarrhea includes protozoa (Cryptosporidium, Microsporidia, Isospora, Giardia, and Cyclospora), virus (cytomegalovirus, adenovirus, and herpes simplex virus), and bacteria (Mycobacterium avium-intracellulare). In both the United States and abroad, Cryptosporidium causes a significant number of AIDS related chronic diarrhea. Diagnosis can be made by stool examination using a modified Kinyoun acid-fast stain done by the lab at special request, enzyme-linked immunosorbent assay, or biopsy of intestinal tissue. Treatment generally is supportive and focused on improving the patient's immune status. In a patient with AIDS, this would include antiretroviral therapy. Paromomycin with azithromycin has also been shown to improve symptoms in some patients.

**DOC, YOUR PATIENT IS SEPTIC . . . OR IS SHE?** T. Sai[1], S. Glick[2]; [1]Cook County Hopital/ Rush University, Chicago, IL; [2]Cook County Hospital, Chicago, IL *(Tracking ID #52434)*

LEARNING OBJECTIVES: 1) Recognize the clinical presentation of Malaria. 2) Emphasize the importance of good history-taking. 3) Recognize the importance of species identification in Malaria treatment.
CASE INFORMATION: A 52 year-old woman from Ecuador presented to the Emergency Department with fever, chills, malaise, myalgias and vomiting for three days. She had immigrated to the United States three months earlier. Her past medical history was significant for a febrile illness that was treated in Ecuador two weeks before she immigrated. Review of systems provided no additional information. Her vital signs on admission were a blood pressure = 80/50, pulse = 104, temperature = 101 and oxygen saturation = 100% on room air. Physical examination revealed no source of infection. Laboratory data was remarkable for a white blood count = 11,900; there were 83% neutrophils. The chest radiograph was unremarkable. Blood and urine cultures were obtained. The Emergency Department admitted the patient to the medical service with a diagnosis of sepsis. The patient was fluid resuscitated and begun on broad spectrum antibiotics. Considering the patient's recent emigration from Ecuador, a blood Giemsa stain was obtained. Plasmodium vivax were noted on the thin smear. The patient was treated with primaquine and chloroquine. She responded well to therapy and was discharged on the second hospital day.
DISCUSSION: Malarial disease in humans is caused by four species of Plasmodia: vivax, falciparum, ovale and malariae. The clinical presentation of infection with any of these species is similar and may include fever, chills, myalgias, headaches, nausea and abdominal pain. Approximately 1000 "imported" cases are diagnosed annually in the United States. The diagnosis is made by Giemsa-stained thick or thin blood smears. Thick smears are more sensitive, while thin smears allow species identification. Species identification is important because it guides therapy. Patients infected by plasmodium vivax, for example, must be treated for both the adult organisms and for hypnozoites, the dormant form of Plasmodium vivax that resides in the liver and if untreated, can lead to reinfection. Treatment includes supportive measures and antimalarial drugs including Quinoline derivatives, antifolates and Artemisinin derivatives.

**ECSTASY INDUCED HEPATIC FAILURE.** M. Salacz[1], D. Williams[1], C.V. Mueller[1], E. Warm[1]; [1]University of Cincinnati, Cincinnati, OH *(Tracking ID #51020)*

LEARNING OBJECTIVES: 1. Recognize the potential complication of fulminant hepatic failure associated with recreational use of MDMA.
CASE INFORMATION: The recreational use of 3,4-methylenedioxymethamphetamine (MDMA), a drug popularly known as "ecstasy", has been associated with hepatic injury. We report a case of a young woman presenting with fulminant hepatic failure after recent ecstasy use. A 22-year-old previously healthy female presented with a seven day history of worsening jaundice, abdominal pain and lethargy. She admitted to having used ecstasy approximately four times in the two weeks preceding her symptoms. Upon presentation to our institution, the woman had markedly elevated liver function tests and coagulation indices. Other tests for causes of liver failure were negative. A liver biopsy demonstrated massive necrosis consistent with ecstasy injury. Despite aggressive supportive care her condition deteriorated and eventually she required emergent hepatic transplantation. She was discharged several weeks later in good condition.
DISCUSSION: Ecstasy was virtually unknown until the late 1980s, but its use is rapidly increasing. Acute fulminant hepatic failure was not a known side effect until recently, when several case series were reported. Two models for the pathophysiology of ecstasy induced hepatic toxicity have been proposed. The first resembles heat stroke, with hyperthermia and disseminated intravascular coagulation, which leads to focal liver necrosis. The second pattern is an idiosyncratic drug reaction, which often takes weeks to develop. This pattern can occur after only one dose, and is associated with massive necrosis. Although fulminant hepatic failure is a rare complication of ecstasy abuse, it was reported to account for 7 percent of patients presenting with acute hepatic failure in one case series. With the recreational use of phenethylamines on the rise, we can expect to see more cases like this, a 22-year-old whose life was irrevocably altered with the use on a non-medically indicated drug.

**A HEARTBREAKING DELIVERY.** S. Sandhu[1], E. Nukta[1], S. Malhi[1]; [1]Fairview Hospital, Cleveland, OH *(Tracking ID #51701)*

LEARNING OBJECTIVES: 1) Recognise the causes of chest pain in pregnancy and peripartum period. 2) Describe the natural history of spontaneous coronary artery dissection.
CASE INFORMATION: A 40 year old white female, in good general health following the normal vaginal delivery of her third child, developed sudden onset retrosternal chest discomfort on the 12th postpartum day. The chest pain was associated with nausea, diaphoresis and mild shortness of breath. Her past medical history was unremarkable. The patient was a non-smoker and did not abuse drugs. She was taken to the emergency room by the EMS where a 12 lead EKG revealed an acute inferoposterior myocardial infarction.The patient was treated with aspirin, morphine, oxygen and nitroglycerin with little relief. Fibrinolytic agents were withheld as the patient was still bleeding after the vaginal delivery. In view of the continued chest pain the patient was emergently transferred for a cardiac catheterization.
Coronary angiography revealed a spontaneous dissection extending from the ostium of the right coronary artery to the middle of the right coronary artery. Two distinct lumens — a true and a false lumen could be visualised. The left coronary artery was normal. There was severe inferobasal hypokinesia with an ejection fraction of 45%. An aortogram ruled out dissection in the ascending aorta.
The patient's chest pain having subsided, it was decided to treat the patient conservatively. She was started on beta blocker, clopidogrel and aspirin. The patient continued to do well post procedure and there was no recurrence of chest pain. A lipid profile revealed dyslipidemia with a total cholesterol of 263, LDL of 182 and HDL of 55. The acute inflammatory markers were elevated with an ESR of 34 and a CRP of 2.1. The patient was discharged home on the 6th post dissection day in a stable condition.
A repeat coronary angiogram done six weeks later revealed complete healing of the dissection.
DISCUSSION: Primary spontaneous coronary artery dissection is a rare condition that was first described by Pretty in 1931. Since then, about 150 cases have been described in the literature. It occurs most commonly in young healthy women with a high incidence in the peripartum period. Therapeutic approaches have ranged from from heart transplantation to coronary artery bypass grafting and PTCA. Thrombolytic therapy has also been given with variable results. The present case illustrates spontaneous healing of coronary artery dissection and role of conservative management in select patients.

**A URINARY ANTISEPTIC AND YELLOW EYES, A CASE OF NITROFURANTOIN INDUCED HEPATIC DYSFUNCTION.** S. Sandhu[1], A. Guirguis[1], S. Malhi[1]; [1]Fairview Hospital, Cleveland, OH *(Tracking ID #52068)*

LEARNING OBJECTIVES: 1) Expound hepatic dysfunction in the elderly. 2) Recognise drug induced chronic active hepatitis.
CASE INFORMATION: An 85year old white woman presented with complaints of fatigue, anorexia and a 10lb weight loss over a three week period and hematochezia for the last 06 months. Other review of systems was unremarkable.
The patient's past medical history was significant for gall stone pancreatitis, cholecystectomy, recurrent urinary tract infections and osteoarthritis. The patients home medications included nitrofurantoin 100mg daily for UTI prophylaxis, Xalatan and Timolol eye drops and over the counter NSAIDS. She was a nonsmoker and took alcohol rarely.
The patient's examination revealed an icteric female weighing 55kg. Vitals were stable. Cardiopulmonary and abdominal exam was unremarkable. No stigmata of chronic liver disease were observed. Due to the unusual age of presentation drug induced hepatitis was considered and nitrofurantoin was discontinued.
Lab investigations revealed a normal CBC. Serum electrolytes and BUN were normal. Total bilirubin was elevated at 9.3 mg/dl, alk phos 454U/L, ALT 467U/L and AST 971U/L. Total protein 7.6g/dl with albumin of 2.9g/dl. GGT was high at 639. Ultrasound abdomen showed a normal liver, absent gall bladder, no biliary tract dilatation and normal pancreas. Serologic markers for Hepatitis A, B and C were negative. CT abdomen and pelvis was normal. A colonscopy revealed diverticulosis and multiple colonic polyps. Pathology revealed tubular adenomas. Further work up was continued for possible autoimmune hepatitis. A SPEP revealed hypergammaglobulinemia. ANA was markedly positive in a titre of >1:2560 with a diffuse pattern. Anti mitochondrial and anti smooth muscle antibodies were negative.
A liver biopsy was done to confirm the diagnosis. It revealed bridging fibrosis, stage III and chronic active hepatitis with cholestasis highly suggestive of nitrofurantoin induced liver disease.
The patient's hospital course was uncomplicated. She was treated with a tapering course of oral methylprednisolone. Her transaminases returned to near normal three months after discharge.
DISCUSSION: A large number of drugs can cause hepatic dysfunction in the elderly. Nitrofurantoin is a commonly used urinary antiseptic. The exact mechanism of injury in nitrofurantoin induced liver disease is yet to be ascertained. The clinical, serologic and pathological features frequently resemble an immunologic mechanism. There is also evidence to suggest that the liver injury may be due to direct cytotoxicity of the parent compound, metabolic product or both. Whatever the etiopathogenesis it is essential that we recognise the uncommon side effects of commonly used drugs.

**FLOWING NEUROLOGICAL DEFICITS DUE TO DEFICITS OF FLOW, AN UNUSUAL CASE OF TIA.** S. Sandhu[1], S. Al-Haddad[1]; [1]Fairview Hospital, Cleveland, OH *(Tracking ID #52077)*

LEARNING OBJECTIVES: 1) Describe an unusual presentation of aortic dissection. 2) Emphasize the value of the vascular as a part of the cardiovascular exam. 3) To recognize an uncommon cause of acute neurological deficit.
CASE INFORMATION: A 52-year old man with recently diagnosed hypertension came to the ER with an episode of sudden onset lightheadedness followed by right lower extremity numbness and a throbbing headache. This later progressed to left lower extremity paraesthesiae. There were no associated cardiovascular, gastrointestinal or respiratory symptoms. A physical examination was unremarkable except for bilateral carotid bruits. Lab investigations including a complete blood count, electrolytes, CXR and CT brain were normal. The patient was admitted with a diagnosis of TIA and carotid artery disease.
The patient continued to be fatigued, developed nausea, emesis and diarrhea with some epigastric discomfort. Examination revealed a well-developed male with a pulse of 67/min. Neck was supple with bilateral carotid bruits. His BP on the left arm was 158/50 mm Hg and on the right 100/60 mm Hg. The arterial pulsations in lower extremity were diminished on the left and normal on the right. Lungs were clear, heart sounds were normal and bilateral abdominal bruits were noted. Neurological examination did not reveal any objective evidence of weakness. An aortic dissection was suspected. A CAT scan of the thorax and abdomen revealed Debakey type I Stanford Type A aortic dissection with involvement of bilateral carotid and bilateral iliac arteries. Patient was then transferred to a tertiary care center where

he successfully underwent an emergent repair of his aorta with a replacement of 2.8 cm segment with Hemishield graft.
DISCUSSION: Acute aortic dissection is a potentially catastrophic cardiovascular event with a mortality of 1% per hour if untreated. While pain is the usual presenting symptom, it may often manifest initially as ischaemic symptoms involving one or multiple organ systems. In case of a rapidly evolving or migrating neurological deficit it is important to keep the possibility of a dissecting aorta in mind.

### FAMILIAL VENTRICULAR TACHYCARDIA AND DILATED CARDIOMYOPATHY.

R. Santucci[1], E. Warm[1]; [1]University of Cincinnati, Cincinnati, OH *(Tracking ID #50920)*

LEARNING OBJECTIVES: 1. To improve understanding of Familial Dilated Cardiomyopathy (FDC),a serious, life-threatening disease. 2. To discuss screening issues surrounding FDC. 3. To delineate effective treatments for FDC.
CASE INFORMATION: Sustained ventricular tachycardia is strongly associated with progression to subsequent ventricular fibrillation and death. We report a case of familial ventricular tachycardia and dilated cardiomyopathy associated with right ventricular outflow tract abnormalities of unknown etiology. A 36 year-old white male with a family history significant for greater than 20 relatives with sudden cardiac death before age fifty presented with complaints of increasing fatigue, diaphoresis, and palpitations. He was noted to have sustained 200 beat runs of monomorphic ventricular tachycardia by an outpatient event monitor and was admitted to the hospital. Physical exam demonstrated a blood pressure of 140/80mmhg and regular pulse of 120. Cardiac exam revealed a systolic ejection murmur at the left sternal border and a hyperdynamic precordium. Laboratory values showed normal cardiac enzymes and electrolytes. An admission ECG performed had sinus tachy-cardia with frequent premature ventricular contractions without ST segment abnormalities. The patient received lidocaine, verapamil and propafenone and was subsequently rate controlled with verapamil only. Cardiac catheter-ization showed normal coronary arteries, and echocardiogram revealed mild left ventricular dilatation with an ejection fraction of 50%, left ventricular diastolic dimension of 5.9, with mild interventricular septal thickening. MRI of the heart showed no evidence of right ventricular dysplasia. Electro-physiology showed inducible monomorphic ventricular tachycardia from the septal right ventricular outflow tact with dual AV node physiology. This was ablated and an automated defibrillator was placed. The patient's tachycardia resolved and he was given the diagnosis of probable familial dilated cardiomyopathy with a strong predisposition to tachyarrythmias.
DISCUSSION: Dilated cardiomyopathy, a disorder characterized by dilatation of the cardiac chambers and diminished systolic contraction, is a major cause of congestive heart failure. Both the cellular and molecular basis of primary dilated cardiomyopathy remains poorly understood. Approximately one third of cases of idiopathic dilated cardiomyopathy are inherited. Transmission may occur as a recessive, X-linked trait, or as the patient above an autosomal dominant form. Dilated cardiomyopathy is often accompanied by conduction-system disease, and disease loci on chromosomes 3p22-p25 and 1p1-q21have been identified. Linkage studies further indicate that the chromosome 1p1-q21 locus accounts for an important fraction of cases of dilated cardiomyopathy and conduction-system disease.

### LEAVING HOME CAN BE HAZARDOUS TO YOUR HEALTH: HEADACHE IN AN AFRICAN WOMAN.

J.S. Schneider[1], D.W. Brady[1], H. Baffoe-Bonnie[1]; [1]Emory University, Decatur, GA *(Tracking ID #52030)*

LEARNING OBJECTIVES: 1. Recognize chronic headaches as a clinical presentation of malaria. 2. Recognize the importance of waning acquired immunity for malaria in the setting of chronic infection.
CASE INFORMATION: A 31 year-old African woman was seen in the urgent care center for follow-up after an emergency room visit for severe headaches. She reported 2 weeks of a constant headache that varied in intensity. It was usually unilateral and retro-orbital but moved from side-to-side. Associated symptoms included tearing, rhinorrhea, persistent nausea, and one episode of vomiting two days prior to presentation. The pain was exacerbated with standing and starting her daily activities. Although there was no associated aura, she could predict the onset of the headaches by a subjective fever. The woman noted that these headaches had been occurring for years with seasonal variation, worse particularly in the summer months. The pain became particularly severe 5 days prior to presentation when she sought care in an emergency room. At that time a non-contrast head CT showed no acute pathology. A subsequent lumbar puncture showed no pleocytosis, 4600 red blood cells in tube 1, 269 red blood cells in tube 4, protein 17, and glucose 59. Gram stain and aerobic culture returned negative. A prescription for hydrocodone from the ER had provided no relief from her pain. The woman had a history of malaria, but she distinguished these symptoms from her usual bouts with the disease. She had emigrated from the Ivory Coast 3 months prior to presentation. She reported no significant alcohol consumption. Physical exam showed significant bilateral sinus tenderness and a tender, enlarged spleen. Of note, she was afebrile and showed no evidence of meningismus, no conjunctival erythema or injection, and a normal neurological exam. Significant laboratory findings included leukopenia and thrombocytopenia. Examination of a peripheral blood smear revealed ring-forms consistent with Plasmodium spp. She completed 10 days of therapy with quinine and doxycycline with prompt relief of her headaches.
DISCUSSION: The syndrome associated with high-level parasitemia associated with malaria can include malaise, headache, fatigue, abdominal pain, myalgias, nausea, and vomiting. The headache can often be chronic and severe, though there is no associated neck stiffness or photophobia. Patients native to or with recent travel to endemic areas should raise a high clinical suspicion for infection with Plasmodium organisms. Most individuals from an endemic area develop a complex humoral and cellular immune response that controls parasite replication but does not eliminate parasites completely. Persistent infection in the immune" host is due to multiple mechanisms, and this complex immune response wanes when a person is outside an endemic area for as little as 2–4 months. The patient presented above likely had a chronic parasitemia that worsened once leaving an endemic area.

### AVASCULAR NECROSIS OF THE HIP: NOT ALL PAIN IN THE KNEE IS KNEE PAIN.

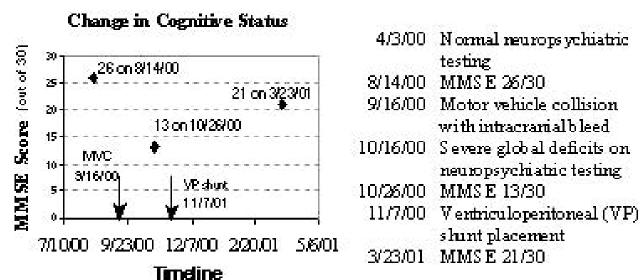
H. Seligman[1]; [1]University of California, San Francisco, San Francisco, CA *(Tracking ID #51396)*

LEARNING OBJECTIVES: 1. Appreciate risk factors for avascular necrosis (AVN) of the hip. 2. Recognize that knee pain may represent hip pathology. 3. Describe current radiologic evaluation for the diagnosis of AVN of the hip.
CASE INFORMATION: A 39 year-old man with HIV infection presented with a two-year history of progressive left knee pain. He described the pain as a diffuse ache. Initially the pain worsened with weight-bearing but now occurred at rest. Treatment with anti-inflammatory medications and physical therapy for several months had no effect on his symptoms, and he had recently started reducing his daily activities. He denied pain in his other joints. His past medical history was significant for HIV with a CD4 count of 400, hyperlipidemia, and non-Hodgkin's lymphoma which had been successfully treated four years previously. His medications included HAART, atorvastatin, and acyclovir. Physical exam revealed an antalgic gait. His left knee had full range of motion without effusions. The joint had no laxity or pain with adduction or abduction. His MacMurray's, Apley's, and anterior and posterior drawer tests were all negative. His left hip had full range of motion with mild pain on forced internal rotation. His other joints were unremarkable. His lack of response to conservative management and his subtly abnormal exam suggested radiologic evaluation of the hip. Plain films of the left hip showed avascular necrosis. A follow-up MRI of the femoral heads revealed Stage 4 AVN of the left femoral head and Stage 1 AVN of the right femoral head. He was referred to an Orthopedic Surgeon for surgical correction.
DISCUSSION: It is important to have a high index of suspicion for AVN of the hip in patients with risk factors as early recognition may prevent the need for joint replacement. AVN is eight times more common in men, and the average age at diagnosis is less than 40 years old. More than 90% of cases occur in patients with a history of alcohol abuse or corticosteroid use. The latter includes even short bursts of high-dose steroids, such as those used in chemotherapy regimens. Other risk factors include trauma, hyperlipidemia, collagen vascular diseases, and pancreatitis. In addition, recent literature suggests that patients with HIV are at increased risk for AVN, perhaps due to the use of protease inhibitors. AVN of the hip may present with buttock, groin, thigh, or knee pain that occurs at rest but is often exacerbated by weight-bearing. Physical exam of the hip is often unremarkable, but pain and limited range of motion with abduction and internal rotation may eventually develop. For patients with long-standing symptoms, plain films of the hip are adequate for screening. MRI is far more sensitive for early disease and should be used to follow up abnormal plain films or in patients with symptoms for less than a few months. All patients with AVN should be referred non-emergently to an Orthopedic Surgeon to discuss management options.

### AN ATYPICAL CAUSE OF NORMAL PRESSURE HYDROCEPHALUS.

M.C. Sha[1]; [1]Indiana University Center for Aging Research, Indianapolis, IN *(Tracking ID #52379)*

LEARNING OBJECTIVES: 1. Recognize Normal Pressure Hydrocephalus (NPH) as a reversible cause of dementia. 2. Diagnose NPH on clinical and radiographic findings. 3. Understand that intracranial bleeding is a risk factor for the development of NPH.
CASE INFORMATION: An 83-year old man presented with confusion and violent behavior. Per family, the patient had been becoming more combative and confused. Assessment also revealed urinary incontinence and difficulty walking. Six weeks prior, the patient had had a motor vehicle collision (MVC) in which he suffered a subdural hematoma with intraventricular hemorrhage. The accident marked the onset of his decline in function, urinary incontinence, and ataxia. Dementia was suspected based on his clinical decline, a recent neuropsychiatric test with severe global deficits, and a Mini-Mental Status Exam (MMSE) score of 13/30. He had had a normal neuropsychiatric battery and MMSE earlier in the year. Reversible dementia labs were normal, and a head CT showed significant interval enlargement of all ventricles. The diagnosis of NPH was made, and a ventriculoperitoneal shunt placed. Five months later, his MMSE was 21/30.




DISCUSSION: Normal Pressure Hydrocephalus (NPH) is a reversible cause of dementia and classically described as a triad of symptoms—dementia, urinary incontinence and gait ataxia. This patient demonstrated these classical symptoms and had characteristic head CT findings. Psychiatric disturbance has been reported in NPH. Dementia is usually the last symptom to become manifest and is the least likely to improve with treatment. This patient's improved cognitive status was due to the prompt recognition and treatment of his hydrocephalus. While NPH typically has an insidious onset with no clear etiology, subarachnoid hemorrhage has been reported to cause NPH. This case report indicates that a subdural hematoma with intraventricular hemorrhage can also cause NPH. All instances of intracranial hemorrhage should be considered a risk factor for developing NPH.

**YOU ARE NEVER TOO OLD TO WANT TO DIE: SUICIDALITY IN THE GERIATRIC POPULATION.** A. Shah[1], R. Granieri[1]; [1]University of Pittsburgh, Pittsburgh, PA *(Tracking ID #51256)*

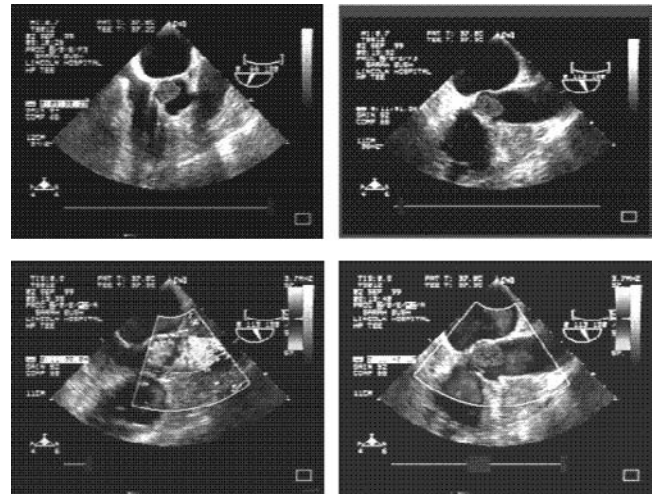
LEARNING OBJECTIVES: 1. To recognize the risk factors for suicide in the geriatric patient. 2. To recognize new onset depression as a prime risk factor for suicidal ideation. 3. To recognize physicians' barriers towards assessing suicidality.
CASE INFORMATION: RL is a 68 year-old Caucasian male with diabetes and hypertension who presented for evaluation of insomnia. He denied use of caffeinated beverages and stated he slept 5 – 6 hours per night. Most recently he endorsed drinking wine before going to bed. He was a prominent physicist who had recently been relieved of his teaching duties. His daily activities included taking care of his 80 year-old wife with end-stage Alzheimer's disease. He had no friends or children. Review of systems revealed weight gain, anhedonia, and hopelessness. Subsequent direct questioning revealed the presence of suicidal ideation and a concrete plan. Following discussion with a geriatric psychiatrist, RL was electively admitted for therapy for suicidal ideation.
DISCUSSION: Suicide is the 7th leading cause of death in the United States. The suicide rate for persons above 65 has increased four-fold in the last decade, and one in four adults above 65 contemplate suicide. Geriatric suicidal patients, unlike younger counterparts, rarely express suicidal ideation. They seldom leave notes, usually use guns, and are more successful than their younger cohorts. Two-thirds of the persons who take their own lives have visited with a primary care physician within 1 month of the action. A biopsychosocial approach to patient care may identify patients at risk for suicidal ideation earlier. Age, gender and race are commonly known red flags. Lesser known risk factors include onset of functional dependence, worsening chronic medical illness, caregiver burden, lack of support system, and changing social environment (e.g. deaths of friends, loss of a job). Depressed geriatric patients often present with neurovegetative symptoms: anhedonia, weight fluctuations, sleep disturbances and/or multiple, chronic somatic complaints. The diagnosis can be delayed or overlooked due to the presence of chronic co-morbid medical illnesses or dementia. The new onset of substance abuse and mood disorders is a strong independent predictor of suicidal ideation. RL demonstrated multiple risk factors for suicide: Caucasian male, age > 60, lack of a support system, sole caregiver to his wife, and recent loss of job. In addition, he exhibited a pattern of dangerous drinking and endorsed neurovegetative symptoms of depressive mood disorder. Multiple studies cite one reason for physician under-diagnosis of suicidality is the pervasive fallacious belief that with aging, it is normal to be depressed and want to die. A high index of suspicion, in conjunction with adequate therapy for depression and early involvement of mental health professionals, is needed for optimal therapy of suicidal ideation in geriatric patients, who are the largest growing segment of our society.

**POPLITEAL ANEURYSMS PRESENTING AS UPPER THIGH SWELLING.** S. Shah[1], L. Lu[1], P. Haidet[1], [1]Baylor College of Medicine, Houston, TX *(Tracking ID #51668)*

LEARNING OBJECTIVES: 1) Construct a differential diagnosis for upper thigh swelling. 2) Review the management of popliteal aneurysms.
CASE INFORMATION: A 75 year-old white male with history of hypertension, coronary artery disease, deep venous thrombosis and pulmonary embolism presented to our outpatient clinic complaining of a four-week history of progressively worsening bilateral upper thigh swelling. He denied trauma, pain on exertion, shortness of breath, fever, or chills. Social history was negative for smoking or intravenous drug abuse. Physical examination revealed enlarged thighs (right > left), no edema or induration, no petechiae, ecchymoses, erythema or tenderness, and no palpable masses. Bilateral pounding popliteal pulses were present. CT scan showed bilateral dilatation of the femoral arteries extending into the popliteal arteries. The right popliteal aneurysm measured 7cm × 12cm × 10 cm and the left measured 6.5cm × 8cm × 10cm. Both aneurysms contained large intramural thrombi. The patient underwent resection of the aneurysms and graft placement without complications.
DISCUSSION: Differential diagnosis of upper thigh swelling includes vascular abnormalities like aneurysms, arterial or venous thrombosis, and hematomas. Popliteal aneurysms are relatively rare and usually affect men in the seventh decade with risk factors of smoking, hypertension, diabetes, and abdominal aortic aneurysm (AAA). Importantly, 40 – 50% of patients with a popliteal aneurysm have concomitant AAA. Popliteal aneurysms are associated with 25 – 67% incidence of amputation if not treated. The indications for surgical intervention include: diameter >2cm or diameter <2cm with findings of claudication or thromboembolic disease. Screening for popliteal aneurysms is not routinely recommended given their rare incidence; however, popliteal aneurysms should be considered in patients who present with upper thigh swelling.

**A LADY WITH BLUE DIGITS.** L. Sharan[1], M. Kamalesh[1], B. Laxminarayanan[2]; [1]University of Illinois at Urbana-Champaign, Urbana, IL; [2]Sarah Bush Lincoln Hospital, Mattoon, IL *(Tracking ID #51048)*

LEARNING OBJECTIVES: Approximately 20% of arterial embolism are caused from a cardiac source. Systemic embolization is a life threatening complication and therefore a prompt recognition and emergent treatment is mandated.
CASE INFORMATION: A 50-year-old previously healthy female with a history of diabetes mellitus type II presented with sudden onset of tender, bluish discoloration of fourth and fifth digits of left upper extremity. Physical examination was unremarkable with normal vital signs. Examination of her extremities revealed bluish discoloration of the distal left fourth and fifth fingers. It was also cool and tender to touch.
Complete blood count, electrocardiogram and chest x-ray were normal. Ischemia of upper extremity was suspected. Since endocarditis was high on the list of differential, patient directly underwent transesophageal echocardiogram (TEE). A 1.3×1.6 cm circular mass of homogenous density attached to the noncoronary cusp of the aortic valve was seen. The left atrium and appendage was clear of any smoke or clot and the ascending aorta did not reveal any plaques. There was no evidence of an intracardiac shunt on contrast studies. A cardiac MRI confirmed the mass to be superior to the aortic valve. Blood cultures were negative for any growth. Patient was started on intravenous heparin. The differential diagnosis at this time included papillary fibroelastoma, thrombus, vegetation or Libbman-Sacs endocarditis.
The mass was excised. Histologically, there was benign fibrous connective tissue and layered blood and fibrin clot with early organization. No bacteria or fungi were identified or isolated from the specimen. A diagnosis of fibroelastoma was made. Postoperatively, the patient had an uneventful course and was sent home on warfarin with a therapeutic INR. Six months later, the patient is asymptomatic.



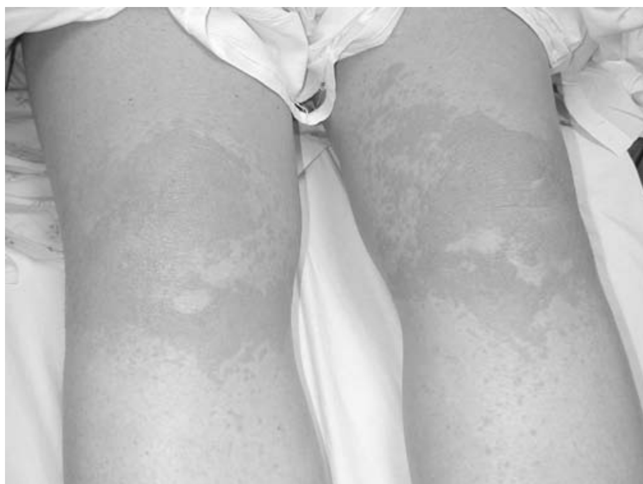
DISCUSSION: Cardiac fibroelastoma is a rare primary benign endocardial tumor with an incidence of 0.002 – 0.33% on autopsy. These are small lesions ranging in size from 0.1 to 5.7 cm. They can cause systemic embolization of the peripheral, cerebral, retinal and even coronary arteries. As the emboli may be due either to the tumor fragments itself or secondary to thrombus formation around the tumor, anticoagulation is recommended. TEE plays a major role in the diagnosing the mass, as the physical findings are seldom present. Even though the tumor is benign, due to potential risk of embolization, surgical excision is recommended. A conservative valve-sparing excision is recommended, as the recurrence of the mass is not known.

**CYTOMEGALOVIRUS INFECTION PRESENTING AS A CASE OF PERSISTENT POSTPARTUM FEVER.** W.W. Sia[1], T. Rizack[2], R.O. Powrie[1]; [1]Brown University, Providence, RI; [2]University of Chicago, Chicago, IL *(Tracking ID #51984)*

LEARNING OBJECTIVES: 1. Learn the possible causes of persistent postpartum fever. 2. Recognize the clinical features of cytomegalovirus (CMV) infection in immunocompetent adults. 3. Understand the difficulties with laboratory investigations of CMV infection.
CASE INFORMATION: A 36-year-old female was seen by the general medicine consult service for a one week history of postpartum fever. She had three weeks of low grade fever prior to her vaginal delivery. Gentamicin and ampicillin/sulbactam were given for presumed chorioamnionitis/endometritis. Her fevers persisted post-delivery and were now associated with rigors, a prominent band-like headache and a sore throat. She was HIV negative. Her only sick contact was her child with an upper respiratory infection. Physical examination revealed a shivering female with T 102 – 105°F, BP 115/79 mmHg, and HR 80/min but no focus of infection. Interestingly, the patient continued to be relatively bradycardic given her high fevers. CBC and chemistries were remarkable only for WBC of 5.3 with 51% lymphocytes and 3% atypical lymphocytes and an AST of 44 U/L. Monospot on admission to hospital was negative and EBV serology did not suggest an acute infection. A weakly positive CMV IgM titre of 1:80 was refuted by a negative urine for rapid CMV testing and what was interpreted as a 'false positive' result for CMV by polymerase chain reaction (PCR). Extensive testing and repeated physical examinations for other causes of fever of unknown origin were negative. Drug fever was felt to be unlikely given the symptoms associated. Repeat monospot returned as positive. All antibiotics were stopped. The patient was discharged home with a working diagnosis of viral illness. Her fever resolved spontaneously 1 week after discharge. CMV IgM convalescent titer was 1:2048 and the diagnosis of acute CMV infection was confirmed. No abnormalities were detected in the newborn on subsequent pediatric evaluations.
DISCUSSION: Postpartum fever is most commonly caused by genitourinary tract infections (especially endometritis and urinary tract infections) or mastitis. Perineal fasciitis, retained products of conception, septic pelvic thrombophlebitis are important differential diagnoses. However, causes unrelated to pregnancy should also be considered. Acute CMV infection in adults is generally mild or asymptomatic. CMV infection during pregnancy, especially primary infection, can cause mental retardation and congenital deafness in children. The diagnosis of CMV usually cannot be made reliably on clinical grounds alone and requires laboratory confirmation. Antibody levels may not be detectable for up to 4 weeks after primary infection and are often not meaningful without convalescent titers. PCR has a high false positive rate. Tissue culture is insensitive. Laboratory investigations cannot differentiate primary infections accurately from recurrent ones as well. Rapid and reliable diagnosis of CMV infection therefore remains a challenge.

**A RASH WITH PREECLAMPSIA — AN INTERNIST'S PERSPECTIVE.** W.W. Sia[1], R. Powrie[1]; [1]Brown University, Providence, RI *(Tracking ID #51226)*

LEARNING OBJECTIVES: 1. Recognize that severe dependant edema can cause a dramatic pruritic rash, known as stasis papillomatosis, that will resolve with treatment of edema. 2. Review the clinical manifestations of preeclampsia. 3. Learn that edema is no longer a diagnostic feature of preeclampsia.
CASE INFORMATION: A 29-year-old primiparous woman at 37 weeks with twin gestation was referred to us by her obstetrician for 3 days history of progressive bilateral, symmetric, pruritic rash in the lower extremities. It first appeared over both knees, then her buttocks and finally around the ankles. Corticosteroid cream had no effect. She denied any history of allergen exposure, viral illness, rheumatologic disease or trauma. The patient had significant dependent edema since 33 weeks gestation. Three days prior, her BP was 130/100 mmHg and she was sent home on bedrest. She repeatedly denied any headache, visual changes or epigastric pain suggestive of preeclampsia. Her past medical history was noncontributory. Physical examination showed a lower limb rash on the extensor surfaces composed of pinpoint to papular, erythematous, and somewhat vesicular, coalescing lesions (see photo) with 3+ pitting edema bilaterally to mid-thighs. No evidence of varicosities, congestive heart failure or hepatic disease was found. Because of the profound edema and elevated blood pressure, 'preeclampsia laboratories' were sent and the patient had 2+ protein on urine dipstick and a platelet count of 117×109/L, both suggestive of preeclampsia. Dermatology felt that the rash was consistent with a manifestation of severe edema. The patient underwent a cesarean delivery that day for her preeclampsia and breech/breech presentation of her twins. Her rash and pruritus resolved spontaneously and rapidly with the disappearance of her edema postpartum.



DISCUSSION: Preeclampsia is the leading cause of maternal and perinatal morbidity in the USA and may present in an atypical manner to an internist's office. Familiarity with the diagnostic features of preeclampsia and willingness to consider it as a differential diagnosis in all pregnant women after 20 weeks gestation is an important part of medical care of women in their reproductive age. Edema is present in 50% of normal pregnancies due to a combination of lowered serum oncotic pressure, altered renal sodium and water handling and mechanical compression on the iliac veins. Edema is almost universal in preeclampsia; however, because of its low specificity, it has recently been removed from the diagnostic criteria for preeclampsia. In this case, severe edema led to a skin eruption, known as stasis papillomatosis, that is seen most commonly with chronic venous insufficiency and it responds well to treatment of the underlying edema. An internist diagnosing preeclampsia helped ensure a good outcome for both mother and infant.

**AN UNUSUAL CASE OF PARAGANGLIOMA SYNDROME.** U. Siddiqui[1], S. Reddy[2]; [1]Cleveland Clinic Foundation, Cleveland, OH; [2]Cleveland Clinic, Cleveland, OH *(Tracking ID #52137)*

LEARNING OBJECTIVES: 1. To become familiar with the paraganglioma syndrome and its implications. 2. To illustrate a case presentation and to review current literature.
CASE INFORMATION: Case: A 44 yr old AAF with a past history of double extra adrenal functioning paraganglioma in 1977, followed by a non functioning carotid body tumor in 1992 presented with 6 month history of right sided flank pain. She was also noted to have episodic hypertension (levels > 240/160 mm Hg). A CT-scan confirmed a 3.1 × 3.6 cm adrenal nodule on the right with a density of 73 Hounsfield units. Total plasma catecholamines: of 5479 pg/ml, And 24 hour urine catechols were elevated at 628 ug/ml while VMA levels were normal. Subsequent MIBG scan showed positive right adrenal uptake with no uptake elsewhere. Family history was non-contributory. Examination revealed a BP of 164/104, and numerous multiple hyperpigmented moles over the face. There was grade II hypertensive retinopathy and an enlarged and displaced point of maximum impulse on cardiac exam. Abdominal exam did not reveal any organ enlargement or any palpable masses. Course: Labetalol was added to her amlodipine and prinivil to better control her BP, in preparation for a laparoscopic adrenalectomy. She underwent her surgery uneventfully.
DISCUSSION: Paragangliomas arise from the ganglia of the autonomic nervous system and may be functional and multicentric. Pheochromocytoma is the term reserved for functioning adrenal paragangliomas. Carotid body tumors, the commonest extra adrenal paragangliomas (60%) can coexist with adrenal and extra adrenal paragangliomas. Coexistence of carotid body tumor with adrenal pheochromocytomas, as described in our patient, on the other hand is extremely rare. There have been about 10 cases reported of such coexistence. More unusual and not described previously is the presence of intercarotid paraganglioma with an adrenal pheochromocytoma and a functioning extra adrenal paraganglioma. The subject presented initially with an extra adrenal functioning paraganglioma, followed by non secreting Carotid body tumor and then recurrence as an active adrenal pheochromocytoma. Familial Paraganglioma Syndrome (PGL-1) is an autosomal dominant disorder of extra adrenal multicentric paragangliomas, with rare maternal transmission suggestive of imprinting. PGL-1 has proven association with SDHD gene mutation (Succinate Dehydrogenase complex subunit D). Our patient's presentation will be compared with the presentations of the other ten reported cases. The skin manifestations may also be a sign of a systemic problem related to neural crest origins.

**MALIGNANT PERITONEAL MESOTHELIOMA (MPM): CASE REPORTS OF MASS AT LAPOROSCOPIC PORTS.** U. Siddiqui[1], M.A. Parsi[1], S.S. Shay[1]; [1]Cleveland Clinic Foundation, Cleveland, OH *(Tracking ID #52322)*

LEARNING OBJECTIVES: 1. Recognize the subtle clinical signs and symptoms of MPM, characteristic radiographic findings and value of early, appropriately performed laparoscopy in diagnosis. 2. Recognize the pitfalls of diagnostic laparoscopy in MPM.
CASE INFORMATION: 1. A 65 year old carpenter with history of exposure to asbestos and smoking presented to his local hospital for 3 – 4 month history of dull abdominal pain, anorexia and weight loss. An abdominal CT scan showed peri-hepatic scarring surrounding the right lobe of liver and a calculus at the neck of the gall bladder. The patient underwent a laparoscopic cholecystectomy with no relief of his symptoms. Laparoscopy revealed thick fibrotic tissue adjacent to the diaphragm, with adhesions of gallbladder and omentum. Patient was transferred to Cleveland Clinic. A repeat CT of abdomen showed peri-hepatic infiltration and encasement of the liver by a fibrotic mass. During his hospital stay, the patient developed a hard non-tender mass at the site of previous laparoscopy. The CT guided core biopsy of the mass was consistent with MPM. Surgically unresectable, the patient was palliated with radiation to site of abdominal mass. He expired six months later. 2. A 42 year old male smoker with no known exposure to asbestos was admitted to his local hospital for 6 month history of abdominal pain, anorexia and 35 pound weight loss. CT of abdomen displayed ascites, omental thickening and thickened bowel wall suspicious for neoplasm. On laparoscopy, a Meckel's diverticulum was found and resected along with 2.7 cm of mesentery. Random biopsies and cytology of ascitic fluid were negative for malignant cells. Due to persistent symptoms patient was transferred to Cleveland Clinic. Physical exam revealed a hard non-tender mass at the site of previous laparoscopy. A repeat CT of abdomen displayed thickened mesentery suggestive of infiltrative malignancy and a mass at the laparoscopy port. An ultrasound guided core biopsy of the mass revealed MPM.
DISCUSSION: MPM is often a diagnostic dilemma for clinicians and pathologists. Because of its vague clinical picture, the median time to diagnosis ranges from 1 to 24 months. The most common signs and symptoms are abdominal pain, weight loss, ascites and abdominal mass. The ascitic fluid has a 25% sensitivity for detection of malignant cells. CT findings may include omental thickening and infiltrative densities in the mesentery. Laparoscopy with extensive biopsy of peritoneal thickening/nodules is the diagnostic modality of choice. However, if diagnosis is delayed there is a risk of tumor dissemination to port sites, making complete surgical debulking difficult and jeopardizing complete cure. Optimal treatment is extensive surgical debulking followed by intraperitoneal chemotherapy.

**SYNDROME OF ECTOPIC ACTH SECRETION: AN UNUSUAL CAUSE OF PROFOUND HYPOKALEMIA.** U. Siddiqui[1], D. Peereboom[1], A. Licata[1], D. Adelstein[1]; [1]Cleveland Clinic Foundation, Cleveland, OH *(Tracking ID #52372)*

LEARNING OBJECTIVES: 1. Recognize the metabolic picture of Ectopic ACTH Syndrome in small cell carcinoma of the lung. 2. Manage electrolyte abnormalities seen in this setting. 3. Recognize role of ketoconazole in blocking hormone production in hypersecreting advanced malignancies.
CASE INFORMATION: A 51 year old female with extensive small cell lung cancer involving the liver was admitted to the hospital, after her second course of Etoposide/Cisplatin chemotherapy, with severe weakness, neutropenic fever and altered mental status. On exam she had moon facies, was confused and deeply tanned with hyperpigmented skin folds. She was recently diagnosed with hypertension and bilateral adrenal hyperplasia identified on abdominal CT scan. Admission labs showed profound hypokalemia of 1.6, bicarbonate of 40, BUN 26, creatinine 0.9, hyperglycemia and metabolic alkalosis with pH of 7.55. Endocrine evaluation included random serum cortisol level of 110.5 (normal(n) = 0.9−15.8) ug/ml. Plasma ACTH was elevated at 271(n = 5−50) pg/ml and 24 hour urinary cortisol was 3975(n = 20−100) ug/ml. Aggressive replacement with intravenous and oral potassium (240 meq/day) failed to replete her potassium, so patient was started on spironolactone 50 mg twice daily with normalization of potassium and alkalosis. Ketoconazole was then chosen to block steroid production, with a drop in serum cortisol to 51 ug/ml over 4 days. The patient started to feel better, with marked improvement in mental status.
DISCUSSION: Patients with ectopic ACTH production often lack the clinical manifestations associated with classic Cushing's syndrome, particularly the weight gain and centripetal fat distribution. Frank Cushingoid features are uncommon but facial puffiness (moon facies) and hyperpigmentation may be present. Serum electrolyte abnormalities, especially hypokalemia and metabolic alkalosis, are more common. The increased mineralocorticoid activity in these states is explained by the effect of cortisol on mineralocorticoid receptor (MCR), which is normally inhibited by 11B-Hydroxysteroid dehydrogenase. High cortisol levels supersaturate the enzyme, leaving free cortisol to act on MCR. Optimal treatment is treating the malignancy. This may not be immediately possible, as in this case. Short term efforts to block the effects of excess hormone production are needed. Hyperglcemia leading to diabetic ketoalkalosis is a recognized complication. Replacing potassium is normally not sufficient. Our experience with spironolactone was encouraging, with rapid improvement in symptomatic hypokalemia. The steroid biosynthesis inhibitor ketoconazole was successful in decreasing serum cortisol by 50%. Although Ectopic ACTH Syndrome is a poor prognostic sign in patients with advanced malignancy, medical

control of hormonal excess is possible, with remarkable improvement in symptoms, stressing the importance of early recognition of the syndrome.

**MYXEDEMA PRESENTING AS HYPOVENTILATORY RESPIRATORY FAILURE.**
S. Singh[1], M.W. Ghobrial[1], S. Beriwal[2]; [1]Mercy Catholic Medical Center, Aldan, PA; [2]MCP Hahnemann University, Aldan, PA *(Tracking ID #51352)*

LEARNING OBJECTIVES: 1. Recognize myxedema coma on clinical grounds. 2. Initiate treatment for myxedema coma while confirmatory thyroid function tests are awaited.
CASE INFORMATION: A 74-year-old white female with history of hypothyroidism, hypertension and bipolar disorder was transferred from the psychiatry floor to the medical intensive unit with lethargy and somnolence. She was known to be non-compliant with her medications and had a history of several psychiatric hospital admissions. Examination revealed: BP 130/70, pulse 50/min, respiration of 12/min that were shallow, rectal temperature 96 0 F and oxygen saturation 80 % on room air. The following findings were abnormal: symmetrical facial puffiness with mild pallor, few ronchi in both lung fields, lethargic with delayed relaxation of ankle reflex bilaterally, and bilateral non-pitting edema. ABG on room air revealed a pH of 7.23, pCO 2 87, pO 2 71 and SaO 2 90%. The clinical diagnosis was myxedema causing hypoventilatory respiratory failure. She was intubated for ventilatory support and started on IV thyroxine and stress doses of steroids. Thyroid function tests revealed T4 of 2.0 (4.5 – 12.9 mcg/dl), FTI of 0.5 (1.5 – 4.4 mcg/dl) and TSH of 27.1 (0.34 – 5.6 mcIU/ml). The above treatment resulted in normalization of her mental status and her being weaned off the ventilator in 48 hours. She was switched to oral thyroxine on day 5 and was weaned off steroids
DISCUSSION: Myxedema coma, the extreme manifestation of hypothyroidism, is an uncommon but potentially lethal condition. Our patient presented with respiratory failure, which is a very rare manifestation that is putatively caused primarily by central hypoventilation. This alteration in the ventilatory control is responsive to thyroid replacement therapy. The diagnosis should principally be based on clinical findings; treatment should not be delayed while awaiting confirmatory laboratory data as early institution of therapy may be life saving.

**PNEUMOCYSTIS CARINII PNEUMONIA COMPLICATED BY BULLOUS PNEUMOPATHY AND RECURRENT SPONTANEOUS PNEUMOTHORAX.**
S. Singh[1], M.W. Ghobrial[2], S. Biswas[1]; [1]Mercy Catholic Medical Center, Aldan, PA; [2]Mercy Catholoic Medical Center, Aldan, PA *(Tracking ID #51362)*

LEARNING OBJECTIVES: 1. Understand that unusual roentgenographic patterns can occur with pneumocystis carinii infection. 2. Recognize pneumocystis carinii as a cause of recurrent spontaneous pneumothoraces. 3. Briefly, review the suggested mechanisms of bullous pneumopathy in patients with pneumocystis carinii infection.
CASE INFORMATION: A 40 year-old-male with HIV infection and history of recent spontaneous left sided pneumothorax secondary to pneumocystis carinii infection (PCP) presented with increasing dyspnea, fever and cough. On physical examination, he had a temperature of 1010F, pulse rate of 114/minute and respiration of 28/minute. Pulmonary exam revealed bilateral crackles with equal breath sounds. Laboratory data: CBC and basic metabolic panel were essentially normal; serum LDH 240 U/L (normal < 190 U/L); pH 7.44, pCO2 34 mmHg, PO2 79 mmHg. Chest radiology revealed bilateral bullous changes and alveolar densities. Shortly after presentation, he developed right-sided pneumothorax and chest tube was inserted. In view of protracted air leak right thoracoscopy was performed which revealed extensive bullous disease for which bleb resection was performed. Biopsy specimens were negative for PCP but positive for acid fast bacilli. A four drug antituberculous regimen was initiated. However, patient continued to have expiratory air leak for which right upper and middle lobe resection was done. The patient suffered a stormy clinical course complicated by respiratory failure and death four weeks after presentation.
DISCUSSION: The most frequent roenterographic finding in patients with PCP is diffuse interstitial opacities involving both lungs; yet atypical presentations are not uncommon. Focal alveolar consolidation, bilateral upper lobe infiltrates, miliary patterns, and nodular opacities have all been cited. Extensive generalized cystic disease and bullous pneumopathy, are extremely uncommon. Several hypotheses, mostly anecdotal, have been postulated: A "check-valve" obstructive phenomenon, recurrent infections, and parenchymal necrosis have been implicated. It is conceivable that TB augments the risk of pneumothorax in patients with PCP, albeit the occurrence of bullous pneumopathy in this setting is one that merits further consideration.

**LOOP DIURETIC INDUCED HYPOCALCEMIA IN A VITAMIN D NUTRITIONALLY DEFICIENT PATIENT.**
J.W. Skogen[1]; [1]Hennepin County Medical Center, Minneapolis, MN *(Tracking ID #52375)*

LEARNING OBJECTIVES: 1. Recognize that loop diuretics affect calcium homeostasis through hypercalciuria. 2. Previous reports document that loop diuretics in hypoparathyroidism lead to hypocalcemia. 3. Submit that loop diuretics in a vitamin D deficient hormonal system may lead to hypocalcemia.
CASE INFORMATION: A 44 year old female was referred to Bone and Mineral Metabolism Clinic for hypocalcemia (7.2mg/dl) that was found incidentally at a pre-operative evaluation for orthopedic surgery. She was asymptomatic and had no previous history of hypocalcemia. Her past medical history included edometrial and renal cell cancer of which she was free of known recurrence, ongoing DM x14years (HA1c ~7), left thyroid lobectomy for multi-nodular disease, rib resection for thoracic outlet syndrome, carpal tunnel release and multiple skeletal problems such as a knee meniscus tear and an ankle fracture from trauma. There was no family history of metabolic bone disease. Her parathyroid hormone (PTH) (550 pg/ml) was elevated as was her alkaline phosphatase (130 Iu/l) with a border line low serum phosphorous (2.7 mg/dl). She was on multiple medications including furosemide 80 mg bid but no other medications known to affect calcium metabolism. Further work-up showed hypercalciuria (324 – 467mg/24hr), phosphate excretion of 1117mg/24hr, and glomerular hyperfiltration (146ml/min). She had a low 25-hydroxy vitamin D (>5ng/ml) and a normal 1,25-dihydroxy vitamin D level.
PE: Neck supple with enlarged/irregular right thyroid lobe, 1/6 SEM left sternal boarder, trace to 1+ pitting edema.
DISCUSSION: Serum calcium homeostatis is regulated by at least two hormonal systems in the body, namely, parathyroid hormone and vitamin D. It is also known that loop diuretics cause hypercalciuria. In normal patients taking loop diuretics, there is an elevation of PTH which is felt to maintain normal serum calcium. Studies have shown that hypoparathyroid patients cannot appropriately compensate for this loop diuretic induced hypercalciuria and they become hypocalcemic. This case documents nutritional vitamin D deficiency. Vitamin D deficiency is usually associated with hypocalciuria. However this individual had hypercalcuria. She also had a high PTH not fitting the previously documented studies of loop diuretic induced hyopcalcemia in patients with hypoparathyroidism. In the face of vitamin D deficiency and loop diruetic induced renal losses she was unable to maintain a normal serum calcium. This case supports that loop diuretic use in a vitamin D deficient patient can lead to hypocalcemia.

**A CASE OF GELATINOUS BONE MARROW TRANSFORMATION IN A NURSING HOME RESIDENT.**
T. Smadi[1], H. Vats[1], T. Gynn[1]; [1]Saint Francis Hospital of Evanston, Evanston, IL *(Tracking ID #51666)*

LEARNING OBJECTIVES: 1. Recognize Gelatinous transformation of bone marrow (GMT) as a rare cause of pancytopenia. 2. Recognize that the incidence of (GMT) is extremely rare in middle and older age groups. 3. Identify severe dietary restrictions and malnutrition as causes for (GMT).
CASE INFORMATION: A 73-year-old male, nursing home resident was admitted when he was found unresponsive. On admission he was hypothermic (temp = 92.4), and hemodynamically unstable. On exam he was cachetic with multiple contractures. He was unresponsive, had equal and reactive pupils, and decreased air entry on the right side of the chest. His Wt. was 80 lb., and his height was 5′ 9″, his BMI = 12. Chest X-ray revealed a collapsed right lung. Labs showed pancytopenia (WBC = 2.5, Hb. = 8.7, Plts. = 96.7) without evidence of adrenocortical insufficiency, DIC, or hemolysis. Bone marrow studies showed hypocellularity along with accumulation of mucopolysaccharides extracellularely leading to complete bone marrow transformation to gelatinous material. The patient's pancytopenia improved with aggressive medical and dietary support, but a repeat bone marrow showed no significant changes. Clinically he did not improve and eventually expired.
DISCUSSION: Gelatinous bone marrow transformation (GMT) is a rare disorder of unknown pathogenesis, characterized by hypoplasia, fat cell atrophy, loss of hematopoietic cells, and deposition of extracellular gelatinous substances (mucopolysaccharides). This defined condition is not specific for a particular disease, but represents an outcome of a generalized illness.
The spectrum of underlying diseases and disorders is heterogeneous and age-dependent. Anorexia nervosa, acute febrile states, and AIDS in younger adults (less than 40 years), alcoholism and lymphomas in middle ages, and carcinomas, lymphomas, and chronic heart failure in older groups (over 60).
The diagnosis in our patient was made by the presence of pancytopenia and the characteristic findings on bone marrow biopsy. There was no evidence of malignancy. Severe malnutrition was most likely the cause.
In review of the literature the incidence of (GMT) was maximal in the age group 20 – 29 years old, it is very rare in other age groups. The diagnosis of (GMT) is associated with high mortality rates.

**THE CASE OF DISSEMINATED GONOCOCCUS-THAT WASN'T.**
T. Spector[1], M. Rotblatt[1], E.F. Yee[1]; [1]UCLA/San Fernando Valley Program, Sepulveda, CA *(Tracking ID #51629)*

LEARNING OBJECTIVES: 1) Learn to deliver "working" diagnoses appropriately. 2) Develop ethical strategies to correct misinformation. 3) Learn to discuss delicate information in a culturally sensitive manner.
CASE INFORMATION: A 28 year old previously healthy Spanish-speaking female presented with a 3 day history of a painful rash on her face and legs, fevers, and migrating joint pains. Ten days earlier, she had a transient sore throat followed by a malodorous, yellow vaginal discharge. Though she was monogamous, she suspected her husband of infidelity. On exam, she was febrile, had a pustular rash on her cheeks and chest, confluent tender erythematous lesions on her shins, a small left knee effusion, and a scant vaginal discharge with no cervical motion tenderness. ICON was negative, and CXR normal. Cultures were sent, and she was started on doxycycline and ceftriaxone for presumed disseminated Gonococcus (GC) infection. Over the next two days, the patient and her husband inquired repeatedly about the diagnosis, insisting on an explanation. Though cultures were pending, a working diagnosis of disseminated GC was discussed with the patient who requested that her husband be told. This was done in Spanish separately. The husband admitted to an infidelity occurring 4 years prior, but none since. He questioned whether this really could have been the cause. We admitted this was unusual to take so long to manifest (and secretly wondered if it really could). He was told the diagnosis of GC was not final, but he would need antibiotic treatment as well. During this time, the ID service was examining the patient. As we were returning to the patient's room, the ID consult greeted us with "it's an interesting rash, but definitely not GC-it looks like E. nodosum." We sheepishly sent the husband back into his wife's room while we spoke to the ID team. They felt that, since initial GC cultures were negative, and the patient admitted to starting OCPs two weeks before the rash started, Group A strep or the OCPs were the most likely culprits. Explaining the abrupt change in the patient's diagnosis to the couple, minutes after implying that the husband may have infected his wife with gonorrhea, was a challenge.
DISCUSSION: During the course of a patient's work up, it is common to base clinical decisions and medical explanations on diagnoses that have not been confirmed. There are times, when working through a differential diagnosis, one ventures down the wrong path. Knowing when and how to communicate with patients is key to preventing confusion and providing accurate information. This is especially difficult in a cross-cultural setting or when pressured to make conclusions with limited information. Initially admitting to our patient's husband that GC was only a working diagnosis made returning with a different diagnosis a bit easier. This case demonstrates the importance of tactfully discussing a sensitive diagnosis, and learning to respond to awkward situations in a manner that maintains patients' confidence and trust.

**NOT JUST ANOTHER TYPICAL COUGH.** J. Striblen[1], D.H. Chao[1], P. Balingit[1]; [1]UCLA San Fernando Valley Program, Sylmar, CA *(Tracking ID #52036)*

LEARNING OBJECTIVES: 1) Recognize ANCA-associated glomerulonephritis in patients with persistent hemoptysis and microscopic hematuria. 2) Review the evaluation and management of Wegener's Granulomatosis-associated renal failure.
CASE INFORMATION: A 70 year old male from India with a past medical history of recently diagnosed hypertension presented to the Emergency Room with 7 day history of cough with blood tinged sputum, dyspnea on exertion, nausea, and bilateral lower extremity swelling. The patient also reported a 20-pound weight loss over one month. His initial vital signs were significant for an elevated blood pressure of 206/109, pulse of 114, and pulse oximetry of 87% on room air. Physical examination revealed a jugular venous pressure of 7 cm, bibasilar crackles on chest auscultation, and bilateral lower extremity edema. The patient had been taking aspirin daily, but no other medications. He denied any history of tobacco, alcohol, or illegal drug use. He had no significant family history. The patient's studies were remarkable for a normocytic anemia (hematocrit 17.6%), BUN 67, creatinine 9.0, urinalysis with 247 red blood cells, chest roentgenogram with bilateral alveolar infiltrates, and renal ultrasound with bilateral echogenic kidneys (right kidney 10.5cm, left kidney 12.5cm). A 24-hour urine revealed a creatinine clearance of 8.4 cc/min and total protein of 3.8 g. The patient received hemodialysis. A renal biopsy showed crescentic glomerulonephritis of the pauci-immune type with approximately 75% fresh crescents. ANCA was positive (1:320) with a P-ANCA pattern. The patient received pulse steroids for three days, and treatment with cyclophosphamide and prednisone was subsequently started. Although the patient initially required hemodialysis, his renal function improved and hemodialysis was eventually discontinued. On follow up, the patient's creatinine decreased to 1.7 with resolution of presenting symptoms.
DISCUSSION: Hemoptysis is a common complaint in the outpatient setting. However, hemoptysis with microscopic hematuria should alert the clinician to consider an underlying systemic disease. Wegener's Granulomatosis is a necrotizing granulomatous vasculitis classically involving the upper and lower respiratory tract and the kidneys. Wegener's Granulomatosis can present as a chronic, indolent upper respiratory tract disease, often difficult to diagnose. Expedient diagnosis and treatment is imperative when renal involvement is apparent. Renal involvement, if left untreated, most often leads to mortality in this disease. Renal biopsy reveals the presence of glomerulonephritis. Elevated ANCA titers supports the diagnosis. A C-ANCA pattern is typically seen in Wegener's Glomerulonephritis. However, in a minority of patients a P-ANCA pattern is seen. This is more common in patients with the pauci-immune type of crescentic glomerulonephritis. Treatment includes initiation of glucocorticoids together with cyclophosphamide. Complete remission can be seen in up to 75% of patients. However, about 50% of patients in remission may suffer one or more relapses requiring further therapy.

**HYPOPITUITARISM IN AUTOIMMUNE HEPATITIS.** N. Suchodolski[1], P. Mehta[1]; [1]New York Methodist Hospital, Brooklyn, NY *(Tracking ID #51785)*

LEARNING OBJECTIVES: An association between autoimmune liver diseases and endocrine dysfunction is well known and usually presents as a hypothyroidism due to autoimmune thyroiditis or sexual hormone dysfunction. Physicians commonly are unaware of a possibility of pituitary involvement although there are quite a few cases of autoimmune hypophysitis and hypopituitarism in patients with autoimmune liver diseases described in the literature. We present a patient with variant form of autoimmune hepatitis who had pituitary adenoma and hypopituitarism.
CASE INFORMATION: A 50 year old man presented with insidious onset of abdominal discomfort, elevated liver enzymes and hypergammaglobulinemia. Viral infection, hepatotoxic drugs, alcohol use, Wilson's disease, hemochromatosis and alpha1-antitrypsin deficiency were ruled out. Antinuclear and smooth muscle antibodies were present. A diagnosis of the variant form of autoimmune hepatitis was made and a trial of oral prednisone was started with good initial clinical response. A few months later the patient was readmitted with deterioration of the level of consciousness and worsening of liver function. Nuclear magnetic imaging revealed $1.2\times1\times1$ cm pituitary adenoma with a cystic component which abutted optic chiasm slightly. Hormonal studies confirmed pituitary insufficiency with low level of TSH, free T4, luteinizing and follicle-stimulating hormones, testosterone and insulin-like growth factor. The prolactin level was slightly above normal. Because the patient was on prednisone his pituitary/adrenal axis was not tested. He was started on thyroid and growth hormone replacement. Further history revealed that he had noticed decreased libido and secondary sex characteristics long before he was diagnosed with hepatitis. These symptoms were reported upon initial presentation but were attributed to the liver disease.
DISCUSSION: This case demonstrates the difficulty one can have in diagnosing and caring for patients with advanced liver disease and concomitant endocrine dysfunction. Considering multiple reports of pituitary involvement in patients with autoimmune liver diseases we think that this case may represent a variant of such a complication, especially in view of the fact that the pathogenesis of pituitary adenoma is related to somatic mutation and might be induced by inflammatory cytokines. Multiple reports of MRI studies of the brain also confirm a deposition of an unidentified paramagnetic substance in different areas of the CNS including the pituitary gland. Because unrecognised hypopituitarism carries a significant risk of morbidity and mortality we suggest that in such patients the presence of any endocrine dysfunction should be promptly investigated for possible pituitary involvement.

**A CASE OF FEVER WITH MACULOPAPULAR RASH — EVIDENCE BASED APPROACH.** R. Sudheendra[1], N. Patel[1], I. Visweshwar[1]; [1]Jersey City Medical Center, Jersey City, NJ *(Tracking ID #52443)*

LEARNING OBJECTIVES: [1] Recognize Adult Still's disease in a case of fever with evanescent skin rash. [2] High serum Ferritin levels - a tool for diagnosis of active adult Still's disease.
CASE INFORMATION: A 34 year- old Hispanic male with no significant past medical history, presented with fever, arthralgias and evanescent skin rash of two weeks duration. The fever ranged from 101° – 105°F and was associated with chills. The rash was on the face, trunk and extremities. It was nonpruritic, salmon-colored, maculopapular and varied from 2 – 5 cm. It appeared mainly during febrile episodes. On examination, apart from the rash, the spleen was palpable one inch below the costal margin. Examination of other systems was unremarkable. Lab investigations revealed Hb 12.2 gm/ dl, WBC 25,000/ çL (82% PMN's), platelet count 312,000/ çL.The BUN, Creatinine and electrolytes were normal. LFT's: AST 68, ALT 111, Bilirubin 0.9mg%. Serum Ferritin - 7760 ng/ ml. Repeated blood cultures were negative for any growth. Monospot test -Neg, ANA and Rheumatoid factor - Neg. RPR, p24 Antigen and PCR for HIV were negative. Parvovirus B19 IgM - Negative. Cryoglobulin, p-ANCA, C-ANCA were negative. Hepatitis serology was negative. CXR - normal. EKG- was normal. Skin biopsy revealed leucocytoclastic vasculitis. A diagnosis of Adult Still's disease (ASD) was entertained and treatment with oral corticosteroids was commenced. The patient was never administered any antibiotic during this period. The patient had a remarkable clinical response and was discharged on the tenth day, after having remained afebrile for at least forty-eight hours.
DISCUSSION: The incidence of Adult Still's disease is about 0.16 cases per 100,000 population per year. The patient met the criteria for the diagnosis of Adult Still's disease. (Fever> 39o C, Arthralgias, WBC > 15000/ mm3, RF< 1: 80, ANA < 1: 100). The high Serum Ferritin levels and skin biopsy were also favorable for diagnosis of Adult Still's disease. It has been suggested that Serum Ferritin Levels > 3000 ng/ml in a patient with compatible symptoms should lead to suspicion of Adult Still's Disease, in the absence of bacterial or viral infections, although at present it is not one of the diagnostic criterion.

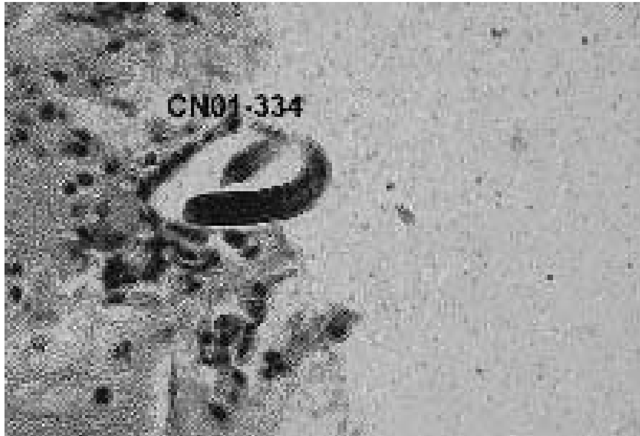
**COLLAGENOUS COLITIS.** V. Szymkowiak[1], P. Hasley[1], R. Granieri[1]; [1]University of Pittsburgh, Pittsburgh, PA *(Tracking ID #50358)*

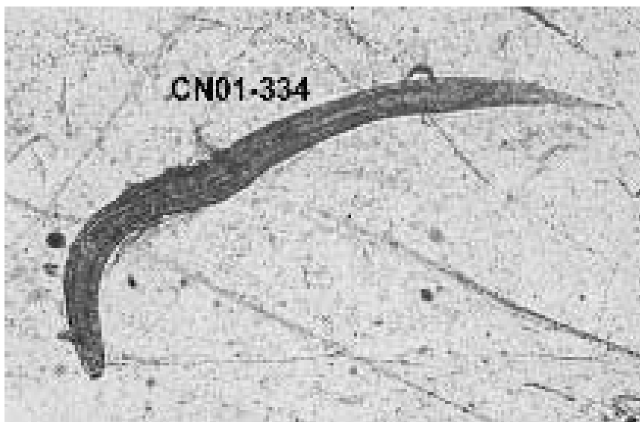
LEARNING OBJECTIVES: 1) Identify the clinical presentation of collagenous colitis. 2) Recognize the pathologic and laboratory diagnosis of collagenous colitis. 3) Recognize the management of collagenous colitis.
CASE INFORMATION: EP is a 60 year old female with a history of breast cancer and antiphospholipid antibody syndrome who presented with a chronic intermittent history of diarrhea, worsening over the preceding 2 months. The patient reported 10 "explosive" watery bowel movements daily. Severe crampy abdominal pain preceded bowel movements and resolved after defecation. The diarrhea was not affected by meals. The urge to defecate sometimes awakened the patient from sleep. No fevers, chills, sweats, hematochezia, melena, nausea, vomiting, fatty or foul-smelling stools, recent travel or antibiotic use were noted. The patient endorsed a 20 pound weight loss over a year. Medications such as attapulgite, loperamide and atropine/diphenoxylate had little effect on her symptoms; amitryptyline resulted in fecal incontinence. Exam revealed dry mucous membranes and mild diffuse abdominal tenderness with normal bowel sounds and heme negative stools. Labs: Hgb 11.2 Hct 33.4 MCV 85 WBC 5.9, normal electrolytes, LFTs, cholesterol, albumin, TSH, and stool for fecal leukocytes, O stool weight was 913 g in 24-hours, and had osm 372, Na 69, K 38, normal fecal fat; antiendomysial and antigliadin antibodies were negative. CT abdomen was normal. Colonoscopy was grossly normal but biopsy revealed a thickened collagen table beneath the epithelium with a chronic inflammatory cell infiltrate consistent with collagenous colitis. The patient was placed on bismuth subsalicylate 3 tabs TID with excellent resolution of her symptoms.
DISCUSSION: Collagenous colitis is a clinical entity in which patients present with chronic watery diarrhea, fecal urgency and crampy abdominal pain. A pathophysiologic mechanism has not been established; however, proposed mechanisms include an alteration in collagen metabolism, mucosal injury caused by bacterial toxins and injury caused by NSAIDs and other drugs. The median age of onset is 55, and there is a marked female to male preponderance. Physical exam is often nonfocal and laboratory data may reveal only nonspecific mild abnormalities such as a normocytic anemia, and an elevated ESR. About 50% of patients will have a positive ANA or other autoimmune markers. While no gross abnormality is identified on colonoscopy, biopsies reveal a thickened subepithelial collagen band and an infiltrate comprised mainly of plasma cells and neutrophils in the lamina propria. The natural history is relapsing and remitting and therapeutic options include sulfasalazine, bismuth subsalicylate, corticosteroids, cholestyramine and antimicrobial agents such as metronidazole or erythromycin. Lymphocytic colitis is a related entity that shares the same clinical presentation, but differs in epidemiology and pathologic findings.

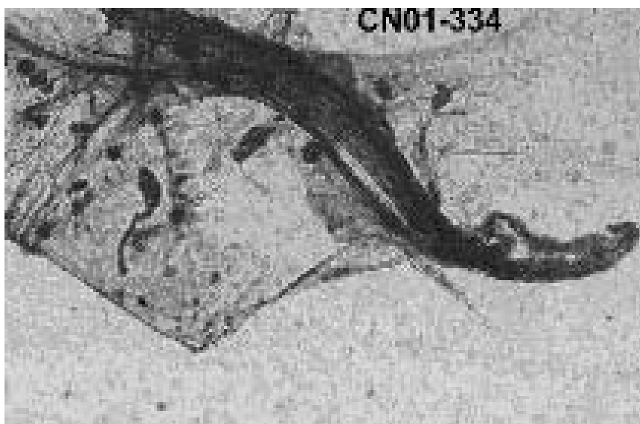
**PULMONARY HYPERINFECTION WITH STRONGYLOIDES STERCORALIS IN AN IMMUNOCOMPETENT PATIENT.** D.D. Tanton[1], S. Durning[1], S. Chambers[1]; [1]Wright Patterson Medical Center/Wright State University, Fairborn, OH *(Tracking ID #52009)*

LEARNING OBJECTIVES: 1) Increase clinical awareness of the features of Strongyloides stercoralis pulmonary syndrome. 2) Discuss effective treatments with emphasis on the potential for detriment with corticosteroid administration.
CASE INFORMATION: A 66 yo white male with a history of mild COPD, recent pneumonia, and a stellate lung mass presented with gradually worsening dyspnea and productive cough in the setting of new pulmonary nodules on CT scan. He had not recently traveled and had no history of immunocompromise, to include no recent oral prednisone therapy. Presenting labs included an absolute eosinophil count of >4000 and a mildly elevated ESR, GGTP, and alkaline phosphatase. His HIV and HTLV antibodies were negative. Physical exam was notable for decreased breath sounds with prolonged expiratory phase and normal skin exam. Diagnostic bronchoscopy was performed. Bronchial washings revealed larval forms consistent with Strongyloides and transbronchial needle biopsy revealed 12 – 14 um nematodes (with eosinophilic inflammation) on cytology consistent with Strongyloides. A course of albendazole was initiated with prompt improvement in symptoms. Approximately one month later, the patient again presented with a productive cough, dyspnea, wheezing and chills. His absolute eosinophil count was >4000. Due to the patient's persisting eosinophilia in the setting of his recent bronchoscopy findings, corticosteroid therapy was not instituted. He was treated with a course of albendazole and ivermectin with resolution of his symptoms.
DISCUSSION: While patients infected with Strongyloides stercoralis often present with gastrointestinal and dermatologic symptoms, the clinical features can be quite varied. It is important, therefore, for the examining physician to consider Strongyloidiasis, as the treatment

course is simple and highly effective. Strongyloides stercoralis is a parasitic nematode endemic to portions of the United States which is capable of perpetuating its life cycle in its human host, thereby leading to persistent infection. We will review the literature discussing hyperinfection and the pulmonary complications of disseminated Strongyloides infection. We will discuss the epidemiology, pathogenesis, clinical features (see attached bronchoscopy slides), and treatment course for Strongyloides hyperinfection. It is important to consider Strongyloides stercoralis pulmonary syndrome in patients who present with pulmonary symptoms and eosinophilia, especially when you are considering corticosteroid therapy.




**IMMUNE THROMBOCYTOPENIA: AN UNUSUAL PRESENTING MANIFESTATION OF TUBERCULOSIS.** K. Tarakji[1], R. Avery[2], A. Lichtin[2], C. Curley[3], A. Jain[2], G. Hall[2], S. Rehm[2]; [1]Cleveland Clinic Foundation, Rockey River, OH; [2]Cleveland Clinic Foundation, Cleveland, OH; [3]Metrohealth Hospital, Cleveland, OH *(Tracking ID #51905)*

LEARNING OBJECTIVES: 1. Recognize tuberculosis (TB) as a rare cause of idiopathic thrombocytopenic purpura (ITP). 2. Understand the importance of the DNA gene probe in the diagnosis of TB. 3.Treat TB-related ITP.
CASE INFORMATION: A 53-year-old African American woman who was recently diagnosed with ITP was admitted to the hospital because of thrombocytopenia. She reported no epistaxis, hemoptysis, vaginal bleeding, or melena. She had been exposed to TB as an adolescent and had had a positive PPD but received no INH prophylaxis. On presentation, she was afebrile (T 36.8 C). Her physical exam revealed nontender submandibular and supraclavicular adenopathy. She had a WBC count of 4.52 K/uL, a hemoglobin level of 11.8 g/dL, and a platelet count of 1000 K/uL. She was transfused with platelets and prednisone therapy was initiated and prophylactic Isoniazid with vitamin B6 was also initiated. The patient's platelet count improved initially but she developed night sweats. A bone marrow biopsy showed megakaryocytic hyperplasia, no neoplasm and no granulomas. A CT scan confirmed the presence of mildly enlarged bilateral submandibular and supraclavicular lymph nodes. The spleen was of normal size. A cervical lymph node biopsy was performed. Ziehl Neelsen and GMS stains did not show AFB or fungi. The pathology report specified non-necrotizing granulomatous inflammation. Four weeks later, a DNA gene probe identified Mycobacterium tuberculosis and the AFB culture subsequently grew pan-susceptible M. tuberculosis. Rifampin, pyrazinamide and ethambuthol were added to the regimen. The dose of prednisone was tapered, and the platelet count increased to more than 100,000 K/uL.
DISCUSSION: TB has been recognized as a public health burden of increasing proportion. TB has been associated with various hematologic abnormalities including anemia of chronic disease and pancytopenia due to granulomatous infiltration of the bone marrow. Isolated thrombocytopenia is rare, and TB-related ITP has been mentioned in only a few case reports. The diagnosis of ITP is based on 2 criteria: thrombocytopenia in the presence of a normal blood count and blood smear and exclusion of other conditions that may cause thrombocytopenia. The pathophysiology of TB-related ITP is not clear. In several case reports, ITP associated with TB resolved after the administration of anti-TB therapy. The absence of recurrent thrombocytopenia after withdrawal of corticosteroids and/or IVIG in all cases, and the poor response to immunoglobulin therapies alone in most cases strongly support the etiologic role of TB in producing ITP and reinforces the need for anti-TB therapy in all patients with TB-related ITP. A common theme in the reported cases to date has been the fact that the connection between thrombocytopenia and TB was not obvious during the initial clinical presentation.

**VERTEBROPLASTY: A CASE DEMONSTRATING THE CLINICAL CONSIDERATIONS.** J.M. Thielen[1], K.R. Thielen[1]; [1]Mayo Clinic, Rochester, MN *(Tracking ID #51663)*

LEARNING OBJECTIVES: 1. Recognize the subset of patients with spinal compression fractures who are appropriate for spinal vertebroplasty. 2. Outline the appropriate clinical and radiologic evaluation for potential vertebroplasty candidates. 3. Recognize potential post-vertebroplasty complications and complaints.
CASE INFORMATION: A 73-year-old female presented with subacute back pain. Five weeks earlier pt fell of a bench and struck her sacrum against a countertop. Pt gradually developed lower thoracic back pain. X-rays and bone scan diagnosed a T11 compression fracture. Pt was medicating with narcotics. The patient's severe pain persisted despite conventional conservative therapies. Her activities of daily living were markedly altered. Therefore, the patient was referred for evaluation as a potential vertebroplasty candidate. Upon referral, clinical evaluation and MRI of the spine demonstrated reproducible, localized tenderness to manual palpation of the spinous process of T11 with evidence of edema in the fractured T11 vertebral body. Patient then underwent T11 vertebroplasty as an outpatient with immediate resolution of pain following the procedure. At 2 month follow-up, patient remains pain free and off narcotics with return to pre-fracture activities of daily living.
DISCUSSION: Vertebroplasty represents a new alternative for the treatment of a subset of patients with spinal compression fractures. Vertebroplasty is growing more wide spread acceptance in the United States. Appropriate candidates for vertebroplasty must have severe localized axial spine pain which is reproducible with manual palpation for the spinous process of the compressed vertebral body. The primary indication for the procedure is treatment of pain. Secondary benefit includes impedance of further vertebral body collapse. Appropriate work-up of compression fracture patients should include plain x-rays of the spine and a MRI of the spine. If contradiction to MRI exists, then bone scan and CT of the spine along with x-rays should be obtained. The vertebroplasty procedure typically is performed by an interventional radiologist who uses flouroscopic guidance to inject PMMA cement into the compressed vertebral body. Published series from experienced groups quote an 85% success rate in significantly reducing patient pain in benign osteoporotic type compression fractures. The procedure is also applicable to pathologic compression fractures in the setting of metastasis or myeloma. Potential procedural related complications include pulmonary cement embolus, neurologic injury, infection, pneumothorax, or hemorrhage. Patients may also feel well following the procedure thus becoming more active which may result in new spinal compression fractures at different levels. All patients undergoing vertebroplasty need vigilant medical management of their underlying medical condition.

**SAFE SEX? SILDENAFIL FOR TREATMENT OF ERECTILE DYSFUNCTION IN PATIENTS WITH CARDIAC RISK FACTORS.** L.M. Thornton[1]; [1]University of California, San Francisco, San Francisco, CA *(Tracking ID #51652)*

LEARNING OBJECTIVES: (1) Recognize patient/provider discomfort in discussing sexual problems. (2) Assess common causes of erectile dysfunction. (3) Treat erectile dysfunction safely in patients with diabetes, hypertension and coronary artery disease.
CASE INFORMATION: A 54 yo storekeeper with diabetes, hypertension and hyperlipidemia presented with vague complaints of fatigue and musculoskeletal aches on multiple office visits. His medications included aspirin, atenolol, hydrochlorothiazide and atorvastatin. Habits included a 30 pack-year smoking history, rare alcohol and no drug use, and he noted little change in exercise tolerance over the past five years. The patient denied recent weight loss, fevers, dark/bloody stools, chest pain, sad mood or anhedonia. Physical exam revealed a blood pressure of 148/86, and was otherwise normal. A TSH and CBC were normal. There was no relief with a reduced atenolol dose and modest increase in exercise. At the end of the follow-up visit, the patiently quietly requested a prescription for "viagra." Further questioning revealed difficulty maintaining erections during sex with his wife for several months, fewer nocturnal/early morning erections over the past year, and intact libido. Subsequent exam showed no phimosis, balantitis or penile plaques, with testes and prostate within normal limits. His thiazide diuretic was changed to an ace-inhibitor, and he was started on sildenafil with successful results.

DISCUSSION: Providers are often reluctant to ask about sexual problems, often citing ignorance about which questions to ask, how to raise the topic and how often a sexual history should be repeated. It is important to identify veiled requests to talk about sex, such as non-specific psychosomatic complaints or offhand comments or questions about sexual function. Erectile dysfunction (ED) is common, especially in patients with diabetes, with an estimated prevalence of 52% in diabetics aged 40 – 70 in the Massachusetts Male Aging Study. Other risk factors of ED include hypertension, depression and alcohol and drug abuse. Antihypertensives have variable effects on ED. Of five classes of antihypertensives studied in the Treatment of Mild Hypertension Study, only the thiazide diuretic led to a significant rise in incidence of ED. In the work-up of ED, checking testosterone levels is controversial. Some studies suggest testing only if low libido or hypogonadism is present. The safety and efficacy of sildenafil for treatment of erectile dysfunction has been widely studied in patients with chronic disease. Multiple controlled trials have confirmed the efficacy of sildenafil in patients with hypertension, diabetes and coronary artery disease. The American College of Cardiology (ACC) identifies sildenafil as safe in patients with these chronic conditions. The ACC states that sildenafil is contraindicated for patients on long-acting nitrates and should never be taken within 24 hours of short-acting nitrate use. Sildenafil has not been sufficiently studied in those with recent MI, stroke or life-threatening arrythmias; hypotension or severe hypertension; or unstable angina to recommend its use in this setting.

**KETAMINE IN LOW DOSES CAN BE AN EFFECTIVE ADJUVANT TO OPIOIDS IN MANAGEMENT OF SEVERE CANCER PAIN.** P.J. Thurmes[1], A. Clavel[1]; [1]Hennepin County Medical Center, Minneapolis, MN *(Tracking ID #50583)*

LEARNING OBJECTIVES: 1. Recognize that cancer pain may be refractory to high-dose narcotics. 2. Consider alternatives to traditional pain management in refractory pain. 3. Recognize that low-dose ketamine has been used effectively as an adjuvant therapy.
CASE INFORMATION: A 53-year old Caucasian male with metastatic gastroesophageal cancer presents with severe pain, nausea, vomiting, and pancytopenia. Recent radiological studies show progression of disease in the abdomen, thorax, bones, and muscles. He is admitted for terminal care. For pain he is given morphine intravenously (i.v.) via patient controlled analgesia pump, transdermal fentanyl (400 mcg/hour), and oral gabapentin. He initially experiences adequate pain control with this regimen. However, by hospital day 6, his pain has escalated despite receiving hydromorphone infused at 14 mg/hour with frequent patient-administered boluses of 5 mg. The patient is in severe pain, agitated, confused, and nauseated. Dexamethasone, lorazepam, and metoclopramide have been added with no apparent benefit. Upon recommendation of the pain management team, he is initiated on ketamine 5 mg i.v. (0.07 mg/kg) every 6 hours and hydromorphone infusion is reduced to 8 mg/hour. The following day finds the patient nearly pain-free but confused and agitated. Other medications (dexamethasone metoclopramide, fentanyl) are reduced or discontinued. Narcotic dose is further reduced, and ketamine is increased to 10 mg every 6 hours. For 21/2 days his pain is adequately controlled and he is calm, conversant, alert, and oriented (though intermittently confused and agitated). By hospital day 11 he is becoming progressively more somnolent. He dies the following day attended by his wife and son.
DISCUSSION: Opioid tolerance is a poorly understood phenomenon that may involve both desensitization of the opioid receptor and activation of the n-methyl-d-aspartate (NMDA) receptor, an excitatory amino acid receptor. NMDA receptor activation in the dorsal horn of the spinal cord is involved in long-term neuroplastic changes that enhance neural excitability and facilitate development of central sensitization (windup) and maintenance of persistent pain. NMDA antagonists have been shown to reduce central sensitization and pain resulting from tissue injury, nerve injury, and visceral distension. Ketamine is an NMDA antagonist whose only FDA-approved use is for induction and maintenance of general anesthesia. However, a limited number of studies have shown that ketamine used in sub-anesthetic doses can reduce or eliminate pain. Either by its effect on NMDA receptors or some other mechanism, ketamine may potentiate the effect of opioids in patients with opioid-tolerant pain, providing analgesia with substantially less narcotic (50% dose reduction). Ketamine has a favorable side effect profile at low doses, and it can be given by parenteral or oral routes. While not currently practical for outpatient therapy, ketamine can be an effective adjuvant to opioids in selected patients where close monitoring of response and side effects is possible.

**A GRIM DIAGNOSIS OF EXCLUSION: HEPATORENAL SYNDROME.** E. Tilleros[1], R. Granieri[1]; [1]University of Pittsburgh, Pittsburgh, PA *(Tracking ID #48094)*

LEARNING OBJECTIVES: 1. Distinguish hepatorenal syndrome(HRS) from other causes of renal failure in the patient with end stage liver disease. 2. Recognize the underlying physiology of HRS. 3. Manange hepatorenal syndrome.
CASE INFORMATION: A 44 y/o female with ESLD secondary to alcohol abuse presented with increasing confusion and decreased oral intake. PMH was significant for anemia, 2+ esophageal varices and portal hypertensive gastropathy. Her only medication was spironolactone. SH was significant for alcohol abuse for many years, none for the last month. PE revealed cachexia, scleral icterus, and decreased mental status. Abdominal exam revealed tenderness and tense ascites. Labwork was notable for an ammonia of 178, BUN and creatinine of 84 and 4.3, Na 127, K 4.5, INR 3.6. WBC was 21.0, Hgb of 10.3 and platelets of 243. Total bilirubin 4.4, albumin 1.9, urine sodium < 10. Urine output was minimal (10cc/hr). Ascitic fluid cell count was consistent with spontaneous bacterial peritonitis (SBP). Gram stain showed gram negative rods. Blood cultures grew E. Coli. The patient was treated with antibiotics, IVF and albumin, but developed persistent hypotension, respiratory failure, and worsening renal failure. After discussion with the family, the decision was made to withdraw support and provide comfort measures only.
DISCUSSION: The occurrence of renal failure in the setting of liver disease was first noted in 1863 by Austin Flint. The modern diagnosis of HRS refers to the development of renal failure in the absence of renal pathology in patients with severe acute or chronic liver disease. Diagnostic criteria were established in 1994 by the International Ascites Club. In the acute form, there is rapid renal failure, with a doubling of the creatinine to > 2.5 or a 50% reduction in creatinine clearance over 2 weeks. Patients are usually severely ill, and a precipitating event, such as infection or increased diuretics, is common. For the diagnosis to be made, patients must be volume expanded and other causes of renal failure (ATN, nephrotoxins) must be ruled out. It is important to distinguish this because prognosis for HRS is very poor, with a median survival of 1.7 weeks. Classically, there is oliguria, low urine sodium excretion, and marked sodium and water retention. Pathophysiology of HRS is not completely understood, but disturbance of normal physiology begins with portal hypertension. Increased pressure in the splanchnic vasculature leads to profound local vasodilation, which causes a decreased effective arterial volume. This stimulates peripheral vasoconstriction, with strong renal vasoconstriction, ultimately leading to renal failure. At this point, therapy is targeted towards bridging the gap to liver transplantation, which usually leads to return of renal function. Volume expanders, ADH analogs, octreotide and splanchnic vasoconstrictors have been used for treatment with marginal success.

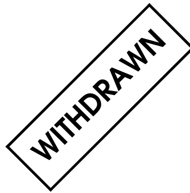
**WHEN A GOOD DRUG GOES BAD, A TRAGIC CASE OF PHENYTOIN HYPERSENSITIVITY.** P.A. Tipnis[1], R. Granieri[1], R.L. Conigliaro[1]; [1]University of Pittsburgh, Pittsburgh, PA *(Tracking ID #48138)*

LEARNING OBJECTIVES: 1. To recognize the signs and symptoms of phenytoin hypersensitivity. 2. To recognize natural history of phenytoin hypersensitivity.
CASE INFORMATION: AH is a 45 year-old African-American male who presented with flu-like symptoms and a rash. The patient was in his usual state of health until one month prior to admission. He was started on phenytoin for the treatment of recurrent neck spasms. Two weeks later he developed fever, chills, sweats and diarrhea. He was diagnosed with viral gastroenteritis and was treated conservatively with ibuprofen. AH continued to feel ill and progressively became weak. One week later, he developed a rash and presented to the emergency department. He was found to be orthostatic, febrile to 39C, and had a painful, erythematous, morbilliform rash covering his entire body including his hands and feet Exam also revealed conjunctivitis, periorbital and perioral swelling, and inginual adenopathy. Laboratory data revealed renal insufficiency with a creatinine of 4.5. The total bilirubin was 1.5; alkaline phosphatase 592; ALT 257; AST 168. Over the next two weeks he developed remitting fevers and fluctuations of his transaminases. Blood cultures, chest x-ray, urine culture, and abdominal ultrasound were negative. RPR, HIV, hepatitis viral screen, EBV titers, HSV titers, VZV titers were all negative. Skin and liver biopsies showed numerous eosinophils consistent with a drug reaction. The patient developed worsening renal failure requiring dialysis and fulminant hepatitis. He subsequently developed septicemia and expired.
DISCUSSION: Phenytoin is a commonly prescribed anticonvulsant. It rarely can produce a multi-organ system hypersensitivity reaction that can be fatal as seen in our patient. The risk of the syndrome is 1 to 4.1 per 10,000. The onset of the syndrome generally begins two to four weeks after starting the drug. Patients first develop nonspecific flu-like symptoms. A morbilliform rash generally occurs one to two weeks later. The rash can be desquamating and often has mucosal involvement. There is often conjunctivitis, facial swelling, lymphadenopathy, hepatitis, and eosinophila. Stevens Johnson syndrome, toxic epidermal necrolysis (TEN), viral exathems and syphilis are among the differential diagnosis. The presence of hepatitis and adenopathy distinguishes this syndrome from Stevens Johnson and TEN. The course is often remitting and the duration is related to length of exposure to phenytoin and not to the dose. Family members and African Americans are more likely to be affected than Caucasians. A patient who develops the syndrome may also develop it with most other anticonvulsant. Valproate appears to be safe, however. Treatment includes cessation of the drug and supportive care. Steroids are not indicated.

**A YOUNG MAN WITH FEVER, SORE THROAT AND CHEST PAIN.** B. Tousi[1], D. Kuo[1], T. Zivin[1], A.S. Klainer[1]; [1]University of Medicine and Dentistry of New Jersey, MORRISTOWN, NJ *(Tracking ID #46007)*

LEARNING OBJECTIVES: Recognize the clinical presentation of the "forgotten disease", lemierre syndrome.
CASE INFORMATION: A 20-year-old male presented with history of fever, chills and myalgia for five days and the recent onset of chest pain. He had developed acute pharyngitis which improved with analgesics but followed by vague diffuse myalgia and arthralgia with abdominal pain and left-sided pleuritic chest pain. The patient looked ill but afebrile with tachycardia. He had a diffuse blanching maculopapular rash covering his neck, entire back, wrists, hands and knees. His conjunctivae were injected bilaterally. A small tender lymph node was palpable in the right anterior cervical area. The chest was clear with moderate tenderness to pressure on the left anterior chest wall.Laboratory findings were as follows: WBC 12,200 (91% Polymorphonuclear), hemoglobin 11.5 and platelet count 39,000. Other labs were were within the normal range. Chest x-ray showed diffuse bilateral lung infiltrates. Chest CT revealed multiple peripheral nodular areas of consolidation with small bilateral effusions. Blood cultures were drawn, and the patient was started on Zithromycin IV for presumed atypical pneumonia. The next morning the fever increased, and he had excruciating pain on the right side of the neck. Blood cultures eventually grew Fusobacterium necrophorum but because of the nationwide shortage of penicillin, imipenem was started and switched to penicillin later. Several days into his course, the severe pain on the right side of the neck persisted. A fullness in the right anterior neck toward the angle of jaw became palpable. A venous duplex revealed acute right internal jugular thrombosis; This was confirmed by neck CT.
DISCUSSION: Thrombophlebitis of the internal jugular vein and fusobacterium sepsis suggest a diagnosis of Lemierre syndrome. The patient underwent internal jugular vein ligation and was continued on intravenous penicillin. He significantly improved and was discharged from the hospital. Lemierre syndrome is characterized by an acute pharyngeal infection, mostly tonsillitis, suppurative thrombophlebitis of the internal jugular vein, anaerobic sepsis and metastatic infections, especially pulmonary emboli. It typically affects previously healthy young adults who, following an acute pharyngitis, become acutely ill with hyperpyrexia, rigors and multiple metastatic abscesses. Cranial nerves involvement may result in ipsilateral Horner's syndrome. CT scan of the neck is the preferred technique for diagnosis, and blood cultures are necessary to optimize antibiotic regimens. The most common organism is Fusobacterium

necrophorum, which is usually sensitive to penicillin G. Ligation of the internal jugular vein should be considered for patients with uncontrolled sepsis or severe respiratory failure due to repeated pulmonary emboli. Although the incidence of Lemierre's syndrome has declined and has been called the "forgotten disease", careful attention should be considered to young patients with oropharyngeal infection who have symptoms of metastatic infection.




**"IT HURTS ALL OVER DOC".** K. Tran[1], J. Wiese[1], M. Cuellar[1], L. Orlando[1]; [1]Tulane University, New Orleans, LA *(Tracking ID #51546)*

LEARNING OBJECTIVES: 1. Recognize the importance of distinguishing between infectious complications and lupus flares in SLE 2. Appreciate atypical presentations of disseminated gonococcal disease.
CASE INFORMATION: A 38 year-old African-American woman with a history of lupus presented with fever, chills, and pain in her head, chest, and arms. She was diagnosed with a presumed lupus flare, and started on oral prednisone. Two days later, she returned with worsening knee pain, subjective fever, and shortness of breath. Her temperature of 99.3F, blood pressure 138/86 mm/hg, respiration rate 16, and room air saturation was 100%. There was bilateral swelling and tenderness of her wrists, knees, and ankles. The C-reactive protein was elevated at 18.6 and the white blood count was 23 k/cmm with 82% neutrophils and 15% bands. A left knee aspiration revealed gram negative cocci, 36000 WBC/HPF, 4600 RBC/HPF, and no crystals. Synovial fluid cultures grew neiserria gonorrhea. A vaginal culture confirmed the diagnosis of neiserria gonorrhea. She was started on cefotaxime. After seven days of intravenous antibiotics, she had significant improvement of her arthritis.
DISCUSSION: It is important to recognize the signs and symptoms that discriminate between active lupus and systemic infections. The empiric immunosuppression used to treat a lupus flare may exacerbate a systemic infection and lead to sepsis. Early findings seen in both, include fatigue, myalgias, arthralgias, fever, and elevated sedimentation rates. Complement levels, leukopenia, thrombocytopenia, and dsDNA levels are helpful in distinguishing between these two diseases. Infectious processes typically present with high complement levels and high fever with chills. Leukocytosis, mild hyperthermia and elevated sedimentation rates occur with both infection and lupus. On the other had, lupus usually presents with thrombocytopenia, hemolytic anemia, elevated dsDNA levels and hypocomplementemia. Disseminated Gonococcal infections (DGI) classically present with asymmetric polyarthritis and tenosynovitis. Our patient's symmetric presentation was unusual for a gonococcal septic arthritis. In contrast, lupus arthritis is generally symmetric. SLE patients who are young with both renal disease and hypocomplementemia are at risk of disemminated neiserria infections. Fifty percent of purulent joints with neiserria gonorrhea are culture positive while 90% of cervical and 75% of urethral cultures are positive. The susceptibility of this population to severe infections warrants a careful evaluation to exclude infectious processes prior to empiric treatment for lupus flares.

**A TOAST TO DEATH:ETHYLENE GLYCOL INGESTION.** M. Tribulato[1], J. Derby[1]; [1]Creighton University, Omaha, NE *(Tracking ID #52272)*

LEARNING OBJECTIVES: Recognize early on the signs of ethylene glycol ingestion. Initiate treatment before confirmatory tests are received. Recognize that fomepizol is now the treatment of choice for ethylene glycol poisoning.

CASE INFORMATION: A 38 y.o. male, with history of seizures and depression, presented via life flight. His roomate found him unresponsive next to a bottle of anti-freeze. Time of ingestion was not known. The patient had threatened to commit suicide 4 days prior. On admission, he was hyperventilating and hypothermic (94.4 F) with otherwise stable vital signs. He was unresponsive and shortly after admission began having a tonic clonic seizure. He was intubated to protect his airway and loaded with fosphenytoin IV. He was immediately treated with ethanol infusion until fomepizole became available. Calcium gluconate and bicarbonate were given repeatedly. IV fluids, pyridoxine and thiamine were also started. His lab revealed an anion gap metabolic acidosis with an osmolar gap. His ETOH level was negative and his urine revealed hippuric acid crystals as well as urate cyrstals. Drug screen was negative. Nephrology was consulted to begin hemodialysis. Despite resolution of his metabolic acidosis and level of ehtylene glycol (initially 29)- his creatinine rose to 11.8, he remained unresponsive and an EEG 4 days later revealed no electrical activity. Family did not wish to discontinue therapy and he died of multiorgan failure 6 days after admission.
DISCUSSION: Severe damage to the central nervous system, heart, lungs, and kidneys results from the metabolites of ethylene glycol. Prompt treatment needs to be initiated when there is any suspicion of ingestion. Laboratory results can sometimes be misleading. Caclcium oxalate cystals can be misread as hippurate crystals by the lab (as in this case). If ETOH is consumed along with the ethylene glycol, there may not be any metabolic acidosis. A patient that presents late in the couse may have metabolized all of the ethylene glycol and not have an osmolar gap. Ethylene glycol levels are readily availble, but treatment should be started prior to results. Fomepizole inhibits alcohol dehydrogenase more potently than ethanol (it is also effective in methanol and isopropanol ingestions). Fomepizole prolongs the half life of ETOH and these two should not be used together as treatment. (In this case, fomepizole was not immediately availabe, so an ehtanol drip was initially started). The drug is dialyzable and its dosing interval must be increased during hemodialysis. Pyridoxine and thiamine promote the conversion of glyoxalate into less toxic metabolites than oxalate.

**INFECTIOUS MONONUCLEOSIS IN AN OLDER PATIENT.** DS. Tung[1], L. Lu[2]; [1]Baylor College of Medicine, Houston, TX; [2]Baylor College of Medicine, Friendswood, TX *(Tracking ID #52293)*

LEARNING OBJECTIVES: 1) Review an unusual presentation of infectious mononucleosis in an elderly patient. 2) Recognize the limitations of the Monospot test in the diagnosis of infectious mononucleosis.
CASE INFORMATION: A 49-year-old man with diabetes presented with fevers and chills for one week's duration. These symptoms were accompanied by weakness, anorexia, drenching sweats, and extreme fatigue. The lack of energy and fatigue prevented him from performing his daily activities. He denied headache, sore throat, rhinorrhea, cough, nausea, myalgia, or rashes. Vital signs were with temperature of 103.1F, blood pressure 140/79, pulse 81, and respirations of 18/minute. Physical exam revealed no signs of pharyngitis or lymphadenopathy, his lungs were clear to auscultation, and he had no hepatosplenomegaly. Blood work showed a WBC 4.6 with 66% neutrophils, 21% lymphocytes, and no atypical lymphocytes. His PPD skin test, chest x-ray, hepatitis panel, HIV, cytomegalovirus, blood and urine cultures were all negative. His Monospot test was also negative, but the Epstein Barr Virus (EBV) Viral Capsid Antigen IgM was >140 (normal range < 20), IgG > 170 (nl range < 20), EBV Nuclear Antigen Ab IgG >200 (nl range < 20), EBV Early Antigen Ab positive (normal is negative). After 6 weeks with supportive treatment, his symptoms resolved.
DISCUSSION: The diagnosis of infectious mononucleosis can often be overlooked in the work up of a febrile elderly patient since its presentation is often atypical from that of younger patients. The symptom of extreme fatigue accompanied by fever in this patient led to the pursuit of the Epstein Barr virus as a possible cause since this virus is known to be associated with chronic fatigue syndrome. The Monospot test could be falsely negative in 10% of all cases, so serology is necessary for the diagnosis. Patients over 40 years old with mononucleosis are less likely to have lymphadenopathy and pharyngitis, and their fever often persists beyond 2 weeks. Furthermore, older patients are less likely to have the classic atypical lymphocytes and lymphocytosis. Although our patient lacked the classic symptoms, infectious mononucleosis must be considered in any elderly patient who presents with extreme fatigue accompanied by prolonged fever.

**Physical Signs and Age Groups, in Infectious Mononucleosis, by Schooley, Axelrod, Finestone**

| | Age ≤ 35 | Age ≥ 40 |
|---|---|---|
| Lymphadenopathy | 94% | 47% |
| Pharyngitis | 84% | 43% |
| Splenomegaly | 52% | 33% |
| Hepatomegaly | 12% | 42% |
| Jaundice | 9% | 27% |

**A CASE OF COMBINED HYPOTHYROIDISM AND HYPOADRENALISM.** G.J. Van Londen[1], S.D. Tadic[1], D.M. Elnicki[1]; [1]University of Pittsburgh Medical Center Shadyside, Pittsburgh, PA *(Tracking ID #52530)*

LEARNING OBJECTIVES: Recognizing the importance of screening for and treating concurrent hypoadrenalism in patients with hypothyroidism.
CASE INFORMATION: A 79-year-old African American female was brought by family to the emergency room because of worsening agitation and hallucinations. Her past medical history is significant for type two diabetes, hypertension, osteoarthritis, syphilis, and hysterectomy. In addition she underwent a thyroidectomy in 1955 because of a benign nodule. Since then, she has been on levothyroxine, except the six months prior to her presentation. The levothyroxine was resumed one week prior to admission. Her bloodwork showed normal electrolytes and a high TSH of 32 (total T4 (2.3), fT4 (0.5)). She was found to be severely bradycardic and dyspneic. Chest X-ray and echocardiogram showed prominent pleural and pericardial effusion.

Subsequently, the patient was transferred to the ICU and started on levothyroxine and hydrocortisone. Injection of Cosyntropin induced only a marginal rise in cortisol levels, compatible with primary hypoadrenalism. Subsequently, the patient was given intravenous hydrocortisone for continuous steroid supplementation, which was changed to oral route after four days. After hormonal supplementation the patient slowly became more alert and awake with recovered function of organ systems.
DISCUSSION: The importance of this case is that in severe, long-standing primary hypothyroidism, pituitary and adrenal function may be concomittently or secondarily decreased. While treating severe hypothyroidism, the physician has to be aware of the possibility that rapid thyroid hormone replacement therapy may precipitate clinically significant and threatening adrenal insufficiency. Therefore, together with levothyroxine, initial treatment with steroids is necessary until concurrent hypoadrenalism is ruled out by the Cosyntropin test. To differentiate between primary, secondary or tertiary adrenal insufficiency, you can measure baseline ACTH level or perform a prolonged ACTH stimulation. The test involves the injection of Cosyntropin and the measurement of baseline, one hour and four hours after injection cortisol levels. A non-significant rise in cortisol level indicates primary hypoadrenalism. Our patient was found to have primary hypoadrenalism, less compatible with long lasting hypothyroidism. In these cases further investigation should be undertaken, to detect polyglandular autoimmune syndromes. Schmidt Syndrome is an autoimmune disease and commonly results in endocrine hypofunction or hyperfunction.

**MEDICATION ERRORS DUE TO A LAPSE IN CULTURAL COMPETENCE.** R. Velders[1]; [1]University of Minnesota, Minneapolis, MN *(Tracking ID #52171)*

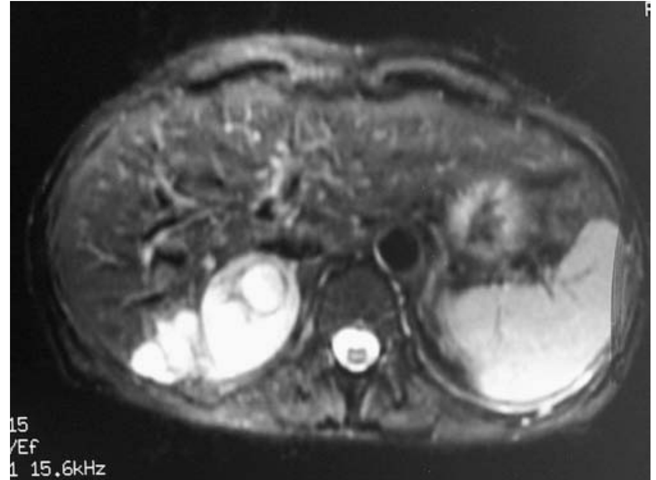
LEARNING OBJECTIVES: 1. Recognize medical interpreters as essential to cultural competence. 2. Outline nine steps to prevent medication errors in patients who have language barriers to care.
CASE INFORMATION: With the help of a medical interpreter I saw a 65-year-old Hmong man with the classic symptoms and exam of benign prostatic hypertrophy. I gave him a sample pack of doxazocin that gradually increased his dosage from 1 to 2 to 4 mg po qhs over a 3-week period. In follow up 3 weeks later, he was side effect free and his blood pressure was 118/70. I gave him a prescription for a maintenance dose of 4mg po qhs of doxazocin. That evening, he had a syncopal episode and was admitted to the hospital in atrial fibrillation. He had apparently taken 8mg of doxazocin — 4mg from the original sample pack and 4mg form the new prescription. He spontaneously converted to sinus rhythm while in the hospital and was discharged on digoxin, aspirin, and doxazocin. When I saw him in follow up, he had been taking all of these medications twice a day. He explained to our interpreter that a Hmong interpreter had not been present when he received his discharge medications. Because the nurses had given him medications in the morning and the evening while in the hospital he had assumed that he should take all of his medications twice daily. I discontinued his digoxin and doxazocin and he has done well.
DISCUSSION: The proper use of medical interpreters is an essential component of cultural competence. Title VI of the Civil Rights Act of 1964 mandates the use of interpreters when providing federally funded services to communities with limited English proficiency. This case demonstrates that medication errors can occur when medical interpreters are improperly used or not used at all. The following step may help prevent medication errors in patients who have language and/or cultural barriers to care: 1) Use a medical interpreter with every patient encounter. 2) Encourage patients to bring their medications to every office visit. 3) Throw away old medications with any dosage change. 4) When possible, use medications with wide therapeutic windows and without withdrawal or first dose effects. 5) When possible, change or add only one medication at a time. 6) When possible, provide instructions in the patient's own language. 7) Involve pharmacists and home nurses in the care of patients who are on multiple medications. 8) See patients in follow up soon after medication changes. 9) Use visual aids such as pill charts and medication boxes.

**A NEW MURMUR, EDEMA, AND FLUSHING.** A.N. Venditto[1], L. Orlando[2]; [1]Tulane Health Sciences Center, New Orleans, LA; [2]Tulane University, New Orleans, LA *(Tracking ID #51619)*

LEARNING OBJECTIVES: 1. Identify the early signs and symptoms of carcinoid heart disease. 2. Recognize the importance of early intervention in the treatment of carcinoid heart disease.
CASE INFORMATION: A 55 year-old woman presented with decreased exercise tolerance and lower extremity edema. She noted progressive dyspnea and facial flushing which she had attributed to menopause. She had no history of heart disease, but did have a history of an ileal carcinoid tumor with hepatic metastasis. She had been asymptomatic since the tumor resection two years prior. On exam she had a crescendo-decrescendo murmur at the pulmonic area that increased with inspiration. There was bilateral lower extremity pitting edema. Her lung exam was normal. The echocardiogram confirmed severe pulmonary stenosis and mild tricuspid insufficiency.
DISCUSSION: The valvular lesions of carcinoid heart disease initially involve the tricuspid and then the pulmonic valves. The severity and rapidity of valve disease directly correlate with the level of serotonin production by the tumor. Since valvular heart disease can progress rapidly, it is important to identify high-risk tumors such as those that have metastasized to the liver. The history of flushing in this patient was suggestive of significantly elevated serotonin levels. The new pulmonic murmur prompted immediate evaluation which is important for successful surgical intervention. Treatment for carcinoid heart disease includes reduction of serotonin levels by tumor resection or chemotherapy and by surgical valve replacement. The prognosis of valve replacement depends upon preservation of right ventricular function. A delayed diagnosis can lead to right ventricular failure and worse outcomes. Historical and examination data are important to a timely diagnosis.

**A TALE OF TWO TUMORS.** V. Venkatachalam[1]; [1]University of Connecticut, Hartford, CT *(Tracking ID #50602)*

LEARNING OBJECTIVES: Demonstrate the diagnostic approach to adrenal incidentaloma.
CASE INFORMATION: A 56-year old lady presented to the emergency department with sudden onset of nausea, vomiting and abdominal pain. PMH: Hypertension. ROS: Episodes of funny feeling with chest pain and headache in the past. Initial physical exam was unremarkable.A chest x-ray showed a left lower lobe infiltrate. An abdominal ultrasound showed a 4cm adrenal tumor,thought to be an incidentaloma, and a mass in the liver. The patient became hypotensive and needed to be intubated for respiratory failure. Her CK was 900U/L with positive MB fraction of 10%.The patient's electrocardiogram showed anterior wall injury and her echo revealed biventricular systolic dysfunction. Cardiac catheterization revealed normal coronaries. After stabilisation, attention was turned to the ultrasound abnormalities detected on admission. On MRI, the liver mass was diagnosed as a hemangioma. Adrenal mass was evaluated with 24 hour urinary metanephrines which were grossly elevated. Her MIBG scan showed increased uptake in her right adrenal gland. Treatment was initiated with dibenzylamine and metyrosine. Two months later she underwent laproscopic removal of the adrenal mass which was confirmed as pheochromocytoma by pathology.




DISCUSSION: Adrenal incidentaloma can range from harmless adenomas to potentially lethal neoplasm. This patient emphasizes that they may not necessarily be incidental, and all that tumors warrant evaluation seeking medical cause. The usual symptoms of pheochromocytoma are paroxysms of headache, sweating, sense of impending doom with elevated blood pressure. The cardiac manifestations include sinus tachycardia and angina. Acute myocardial infarction may occur in the absence of coronary artery disease due to catecholamine induced increase in myocardial oxygen demand and vasospasm. The approach to an incidentaloma should include overnight low dose dexamethasone suppression test and 24 hour urine catecholamines or metanephrines. If the tumor is functional further imaging and definitive treatment warranted. A non functional tumor should be followed up periodically with imaging studies and rapid increase in size should warrant surgery.

**PULSELESS ARM.** C.M. Vergara[1]; [1]Hartford Hospital, Rock Hill, CT *(Tracking ID #46063)*

LEARNING OBJECTIVES: 1) Demonstrate the diagnostic approach to subacute upper extremity arterial insufficiency and 2) the work up of thrombotic disorders.
CASE INFORMATION: CC: Referred from ER for constant left arm pain for several weeks HPI: WM is a 64 year old white male with history of left shoulder adhesive capsulitis, questionable alcoholic cardiomyopathy, GERD, s/p polypectomy for tubular adenoma (1989), BPH (last PSA = 6.7) who presented with the above chief complaint. The pain is worsened with use and associated with paresthesias. He denies any trauma. Previous lab evaluation showed a normal lipid profile and CBC. PMHx: possible rheumatoid arthritis (RA) Meds: omeprazole, celecoxib FHx: Mother died of "blood clot" Social Hx: Quit ETOH & tobacco ROS: Chronic cough and joint pain in both hands. Physical exam was remarkable for a cool left hand and absent radial and brachial pulse. There was mild swelling in hand joints. Rectal exam was guiac negative and revealed an enlarged prostate.
DISCUSSION: The approach to acute arterial occlusion should include consideration of the following: external compression, atherosclerosis, stasis, hyperestrogenic states (e.g. pregnancy, oral contraceptives), vasculitis, embolic phenomeneon and hypercoaguable states (trauma, malignancy, stasis and hematologic hypercoaguable states). Let us apply the above approach to our patient. External compression was ruled out at the time of open surgery. Atherosclerosis was unlikely in this patient with normal lipid profile and no modifiable cardiac risk factors. Subsequent tests for lipoprotein a and homocysteine level were also normal. Although a transesophageal (TEE) was not performed, transthoracic echo showed no source of cardiac emboli, such as atrial thrombus, PFO or atrial septal defect. In addition, EKG and ambulatory Holter monitoring showed no evidence of atrial fib or other dysrhythmias. Malignancy work up should focus on age appropriate cancer screening and relevant history and physical. In this patient, TRUS with biopsy of the prostate was unrevealing and repeat colonoscopy showed no polyps or masses. Tests for primary hematologic hypercoaguable states were limited since protein C & S and antithrombin III levels would be low shortly after an acute thrombotic episode. The only reasonable tests at this time would be tests for antiphospholipid antibody levels (e.g., lupus anticoagulant) and Factor V Leiden resistance. Both of which were normal. Hyperestrogenic states were ruled out by history and unlikely in a male patient. Follow up: The patient remains asymptomatic one year post brachial artery bypass surgery and has therapeutic INRs on coumadin. Antithrombin III level was normal. The patient subsequently was diagnosed with rheumatoid arthritis and responded well to methotrexate. Patient had decreasing serial levels of PSA and no urinary symptoms. Protein C and S levels were never obtained in view of patient's reluctance to discontinue coumadin even for a transient period of time. The final

impression is idiopathic brachial artery thrombosis. Differential diagnosis includes vasculitis of the brachial artery with or without Protien C or S deficiency.

**NOT ALL VOMITING IN PREGNANCY IS HYPEREMESIS.** S. Vora[1], R. Powrie[1], L. Larson[1]; [1]Brown University, Providence, RI *(Tracking ID #52300)*

LEARNING OBJECTIVES: 1. Recognize the causes of nausea and vomiting in pregnancy. 2. Demonstrate the clinical presentation of mesenteric thrombosis. 3. Emphasize the fact the pregnancy is a hypercoaguable state and briefly outline the management of thrombosis in pregnancy.
CASE INFORMATION: A 37 year-old woman at 19 weeks gestation was referred to the general medical consult team for three weeks of anorexia and vomiting. She had been treated symptomatically for presumed hyperemesis gravidarum. She denied sick contacts, alcohol or drug use. Exam revealed T 101.6F, pulse 114, RR 12, BP 103/60 with mild scleral icterus. Abdomen was markedly tender but without guarding, rebound or fluid wave. Laboratory evaluation was significant for WBC 36.6 and an AST of 40 U/L. An abdominal ultrasound was normal except for absent portal venous flow. CT scan of the abdomen showed portal and mesenteric venous thrombosis. A hypercoaguable work-up revealed only a relative protein S deficiency. The patient was treated with intravenous unfractionated heparin and antibiotics. She improved significantly within 48 hours and was placed on low molecular weight heparin until the birth of her healthy 2475 g girl.
DISCUSSION: Nausea and vomiting occur frequently during pregnancy. Causes can be related to physiologic changes in pregnancy, but may represent underlying medical illness such as gastroenteritis, cholecystitis, pyelonephritis and liver disease. Less commonly, primary hyperparathyroidism, small bowel obstruction, mesenteric thrombosis or mesenteric ischemia may also present in pregnancy. Internists can be instrumental in assisting in these diagnoses. Most patients with mesenteric thrombosis present with at least two weeks of symptoms of abdominal pain, anorexia, and change in bowel habits, and many are also febrile. Most cases of mesenteric thrombosis have an identifiable underlying hypercoaguable state. Pregnancy is known to be an additional risk factor for thrombosis. The treatment of acute thrombosis in pregnancy involves the administration of either low molecular weight or unfractionated heparin given as subcutaneous twice daily injections, since warfarin is contraindicated in pregnancy. The dose of unfractionated heparin is calculated from the 24 hour requirement of intravenous heparin divided equally between twelve hours. Therapeutic levels are assessed by a mid-interval APTT or heparin level.

**SYNCOPE: A COMMONLY OVERLOOKED SIGN OF PULMONARY THROMBOEMBOLISM.** T. Vu[1], T. Kuzmowych[1]; [1]Washington VAMC, Washington, DC *(Tracking ID #51337)*

LEARNING OBJECTIVES: 1. To recognize that syncope is a very noteworthy and not unusual presentation of pulmonary thromboembolism. 2. To emphasize the importance of pursuing the diagnosis of pulmonary thromboembolism in cases of syncope for which a definitive cause cannot be identified.
CASE INFORMATION: An 80-year-old man presented with a witnessed syncopal episode and no preceding symptoms. Past medical history and medications were noncontributory. Initial evaluation with orthostatics, physical exam, EKG, CXR, and laboratory tests were all unrevealing. The patient was admitted to the cardiac telemetry unit and ruled out for acute myocardial infarction; no arrhythmias were detected. One day after transferring to the medical ward for further observation, he complained of diffuse myalgias but denied any chest pain. He had a low-grade temperature (99.5°F), a respiratory rate of 26/minute, bibasilar crackles, a pulse oximetry of 90%, and a WBC count of 11.7K. Repeat CXR revealed bibasilar infiltrates with a small left sided pleural effusion. EKG remained unchanged. Levofloxacin was started for presumed pneumonia. Approximately 18 hours after the initiation of antibiotic therapy, the patient had another syncopal episode and died. Autopsy revealed bilateral pulmonary thromboemboli and a right lower lobe pulmonary infarct. No pneumonia or deep venous thromboses were found.
DISCUSSION: This case demonstrates that pulmonary thromboembolism with documented infarction can present as syncope with no pleuritic chest pain. The literature reports that up to 13% of cases diagnosed to have pulmonary thromboembolism (PTE) can present as syncope as the initial or predominant clinical feature. PTE is a very significant cause of cardiac syncope which itself has an associated one-year mortality rate of 20%. The signs and symptoms of PTE are neither sensitive nor specific but they can very easily mimic the signs and symptoms of common causes of syncope. To diagnose PTE that presents as syncope one must: (a) be aware of these facts, and (b) have a high enough index of suspicion to be willing to pursue the diagnosis of PTE in cases of syncope that do not have a clear-cut cause.

**THE PRICE OF SUCCESS: BILATERAL BREAST CANCER AND THYROID CANCER AFTER CURED HODGKIN'S DISEASE.** D.L. Wahner-Roedler[1]; [1]Mayo Clinic, Rochester, MN *(Tracking ID #51450)*

LEARNING OBJECTIVES: To raise physicians awareness of second malignancies, especially breast cancer (BC) and thyroid cancer (TC), as a late event following radiation therapy (RT) to the mediastinum for Hodgkin's disease (HD) in young women.
CASE INFORMATION: A 22-year-old woman presented in 1956 with fever, night sweats, cervical, axillary, infraclavicular lymphadenopathy and splenomegaly. Lymph node biopsy showed HD (granuloma-type). The patient was treated with RT (mantle field, upper abdomen). In 1978, she required six cycles of MOPP for recurrent HD. In 1980, she was found to be hypothyroid and started on Synthroid. In 1986, a screening mammogram revealed suspicious microcalcification in the upper outer quadrant of the right breast. An excisional biopsy showed infiltrating grade 4 ductal adenocarcinoma 0.8 cm, axillary nodes negative. Therapy: modified radical mastectomy. In 1987, a screening mammogram of the left breast showed architectural distortion with extensive irregular calcifications deep to the nipple. Excisional biopsy showed ductal carcinoma in situ (DCIS). A left simple mastectomy revealed multifocal DCIS. In 1998, the patient presented with an enlarging goiter on Synthroid. Thyroid examination revealed a firm nodular area over the left lobe. A FNA was suspicious for Hürthle cell neoplasm. A thyroidectomy revealed a grade 1 follicular carcinoma with extensive capsular and focal vascular invasion. Six weeks postop, the patient was treated with 75 mCi 131J for ablation of a thyroid remnant. When last seen in February of 2001, there was no evidence of recurrent HD, BC or TC.
DISCUSSION: Therapeutic RT has contributed immensely to curing HD. However, with longer follow-ups, previously unrecognized risks are becoming apparent. It has recently been shown that the risk of BC and TC is increased starting 10–15 years after RT. The risk is critically dependent on age at RT for HD with greatly increased risk for women treated under the age of 30 years, but little or no increased risk for older women. A study by Swerdlow et al (J Clin Oncology 2000,18:498) showed a relative risk (RR) of 7.7 (95%CI 3.57–14.4) for BC and a RR of 13.1 (95%CI 2.2–40.5) for TC for women treated with RT for HD under the age of 25.
IMPLICATIONS: Systematic screening for BC and TC is important in the health care of young HD survivors. In patients with additional risk factors like a strong family history of BC, prophylactic mastectomy should be considered. If a HD survivor treated with RT to the mediastinum develops BC, mastectomy rather than lumpectomy followed by RT is recommended.

**MASTER OF DISGUISE: RETURN OF THE "WHITE PLAGUE."** M.M. Walsh[1]; [1]Hennepin County Medical Center, Minneapolis, MN *(Tracking ID #52390)*

LEARNING OBJECTIVES: 1.) Recognize the signs and symptoms of extrapulmonary Tuberculosis (TB). 2.) Become familiar with the diagnostic steps necessary to diagnose lymphatic and genitourinary TB. 3.) Recognize that TB is an endemic disease in American born people.
CASE INFORMATION: A 52 y.o. Native American female with multiple medical problems presents with a fever of 103, dysuria and persistent hematuria. This is her third admission for similar urinary complaints in the last four months. She also has night sweats and a fifteen-pound weight loss over the past 4–6 weeks. She had also noted a painless enlarged lymph node at the anterior neck. She has a strong family history of tuberculosis including a brother and a father as well as a documented positive PPD for over a decade. In addition, she has had repeated complaints of dysuria and gross hematuria for four months. Initial urinalysis revealed a sterile pyuria and hematuria. The patient underwent an extensive urologic workup at the time including a cystoscopy with retrograde pyelogram and bilateral renal ultrasound. The ultrasound failed to reveal evidence of stones, renal masses or hydronephrosis. There were no lesions seen within the bladder, ureters, or collecting system to explain the hematuria. She is HIV negative and has no pulmonary complaints. Physical exam demonstrates a 2x3 cm, nontender, rubbery, supraclavicular lymph node on the left, but otherwise unremarkable. A chest CT reveals a solitary left supraclavicular lymph node and calcified right pretracheal lymph node and mildly enlarged aortocaval adenopathy. A fine-needle aspirate of the node was performed and demonstrated granulomatous inflammation with necrosis. An AFB culture isolated Mycobacterium tuberculosis(TB) within four weeks. The patient will undergo treatment once susceptibility testing is complete. Although renal TB is not yet confirmed in this patient, suspicion of renal involvement is high. Her management is still in progress.
DISCUSSION: Much of today's literature on extrapulmonary TB is targeting foreign-born individuals from TB-endemic areas or those who are HIV positive. Understandably, 60–80% of HIV infected patients develop non-pulmonary TB in contrast to only 17% of non HIV infected patients. Tuberculous lymphadenitis occurs in about 30% of cases of extrapulmonary tuberculosis. Asian and Native American (especially women) are at highest risk. The lymph nodes are overall the most common extrapulmonary sites involved, followed by pleura (23%), genitourinary tract (15%), bones and joints (11%), meninges (5%), and finally peritoneum. The diagnosis is established by fine-needle aspirate or surgical biopsy with the histology demonstrating granulomatous lesions. Acid Fast Bacteria are identified in up to 50% of cases. Cultures have a greater return, yielding positive results in 70–80% of cases. Genitourinary TB is most commonly found in women, with Native Americans again being the most common receptors of this form of TB. Disease often begins with local symptoms such as urinary frequency, dysuria, hematuria, and flank pain; however, it may also go unnoticed until severe destruction of the kidneys occurs. Urinalysis is abnormal 90% of the time demonstrating sterile pyuria and hematuria. The best diagnostic test involves AFB culture of 3 serial first void urine samples, with a diagnosis arising 90% of the time.

**ALL THAT WHEEZES IS NOT JUST ASTHMA: A CASE OF ALLERGIC BRONCHOPULMONARY ASPERGILLOSIS.** M.A. Wamsley[1]; [1]University of California, San Francisco, San Francisco, CA *(Tracking ID #51993)*

LEARNING OBJECTIVES: 1) Recognize the clinical features of allergic bronchopulmonary aspergillosis (ABPA). 2) Recognize when to further evaluate asthmatic patients for ABPA.
CASE INFORMATION: A 35 yo woman with a lifelong history of asthma and atopy presents with fever, pleuritic chest pain, productive cough, fatigue and shortness of breath/wheezing for 4 days. Over the past 18 months she has had 3 similar episodes associated with infiltrates on her CXR in a variety of locations. Each episode responded to oral corticosteroids and Levofloxacin. She has also experienced malaise, anorexia and worsening control of her asthma despite consistent use of high dose inhaled corticosteroids and beta agonists. On physical examination she is a thin woman with a temperature of 38 in mild respiratory distress. Her peak flow is 260 LPM. Her lungs have bilateral expiratory wheezes and rhonchi. She has no evidence of clubbing. Laboratory evaluation is notable for a WBC of 8.6 with 17% eosinophils. HIV is non-reactive. Immunoglobulins A, G and M are normal. Serum IgE is elevated at 1104 (>100 IU/ml WNL), Aspergillus IgG 93 mcg/ml (Class V, very high), Aspergillus IgE 13.4 (Class III, high). CXR is notable for a lingular infiltrate. HRCT does not demonstrate evidence of bronchiectasis. BAL reveals endobronchial changes consistent with bronchitis with thick mucous plugging. Bronchial wash smears are negative for AFB, fungal elements, and ova and parasites. Fungal culture grows Aspergillus fumigatus (AF).

DISCUSSION: ABPA is a pulmonary disorder affecting asthmatic patients and patients with cystic fibrosis that is thought to result from an allergic response to antigens arising from AF colonization of the airways. ABPA is estimated to affect 7 – 14% of all asthmatics. Although ABPA may occur at any age, it typically occurs in the third or fourth decade of life and is more common in asthmatics with a history of atopy. Clinical manifestations of ABPA include recurrent asthma exacerbations with wheezing and productive cough. In addition, patients may experience systemic symptoms including fever, malaise, anorexia and headache. Chest x-rays reveal infiltrates that may be transient or fixed. Central bronchiectasis is a hallmark of ABPA, but need not be present for the diagnosis to be made. The major diagnostic laboratory features of ABPA include immediate skin test reactivity to AF antigens, positive precipitins against AF, serum total IgE >1000 ng/ml, peripheral blood eosinophilia, and elevated specific IgE/IgG for AF. The diagnosis of ABPA should be considered in any asthmatic with recurrent infiltrates or central bronchiectasis, refractory clinical course, sputum cultures positive for AF, or prominent peripheral eosinophilia. The course of ABPA is variable, but early diagnosis and treatment may prevent progression to fibrotic lung disease. The current mainstay of treatment is systemic corticosteroids which are usually required long term and are associated with an improvement in symptoms and infiltrates as well as a decline in serum IgE levels and peripheral eosinophilia. Although antifungal drugs are not usually recommended for treatment of ABPA, there are some recent studies of Itraconozole suggesting that it may have some utility in treating ABPA.

**FEVER AND LEFT UPPER QUADRANT PAIN IN A MAN WITH SICKLE-CELL DISEASE.**
A. Wang-Gillam[1], R. Lee[1], D. Brotman[1]; [1]Cleveland Clinic Foundation, Cleveland, OH *(Tracking ID #51382)*

LEARNING OBJECTIVES: 1. Recognize the clinical features of acute splenic sequestration crisis (ASSC). 2. Understand the importance of early recognition of ASSC and the role of splenectomy in its management. 3. Appreciate that non-infectious splenic processes can be associated with severe systemic inflammation.
CASE INFORMATION: A 36-year-old man with a history of Hemoglobin SC disease presented with sudden onset of severe left hip pain. His past medical history was significant for multiple hospitalizations for complications of sickle cell disease, including pneumonia, cholecystitis, avascular necrosis of both femoral heads and splenic infarction. Physical examination was unremarkable except for limited range of motion of the left hip secondary to pain. Laboratory data showed no evidence of hemolysis or infection. IV fluid and analgesia were initiated. On hospital day 4, he began to experience intense left upper quadrant pain. He became febrile to 40.3°C with associated tachypnea, tachycardia, diaphoresis, hypoxia, and jaundice. Laboratory studies revealed: Hgb 7.5g/dL, WBC 37K/L, platelet 65 K/L, and pO2 41mm/Hg on room air. Broad-spectrum antibiotics were started. Chest X-ray showed bibasilar atelectasis and a small left pleural effusion. Pleural fluid was exudative with no organisms present. Blood cultures, urine cultures, HIV antibody, CMV cultures and PPD were negative. CT of the abdomen showed marked splenomegaly and a mass-like process in the spleen. Needle aspiration of the spleen was negative for malignant cells, and the cultures were negative for bacteria, fungus and mycobacteria. The patient gradually improved with supportive care, and subsequently underwent laparoscopic splenectomy for presumed splenic sequestration crisis. The diagnosis was confirmed by pathological examination of the spleen.
DISCUSSION: Acute splenic sequestration crisis is a common complication of sickle cell disease in children with SS genotype, but is rare in adults with the SS genotype because the spleen is completely destroyed by splenic infarctions during childhood. In hemoglobin SC disease, splenic destruction occurs more gradually and sequestration crises may occur in adulthood. This case demonstrated the typical features of ASSC: acute splenic engorgement from sickled cells with resulting anemia, hemolysis and thrombocytopenia; profound systemic inflammation mimicking sepsis. Early recognition of ASSC may prevent excessive diagnostic and therapeutic procedures. Splenectomy after resolution of the acute episode prevents subsequent attacks, which may lead to splenic rupture and death.

Abdominal CT.

**RECURRENT PNEUMONIA IN AN HIV-POSITIVE MAN.** S. Whittingham[1], J. Wiese[1]; [1]Tulane University, New Orleans, LA *(Tracking ID #50997)*

LEARNING OBJECTIVES: 1. Recognize causes of recurrent pneumonia in an HIV-positive patient. 2. Diagnose bronchiolitis obliterans with organizing pneumonia from radiographic and biopsy results.
CASE INFORMATION: A 43 year-old HIV-positive man presented with progressive shortness of breath for one week. He had a cough that was productive of yellow sputum streaked with blood. He had been hospitalized for pneumonia three times within the previous two months. On each occasion, his symptoms improved following intravenous antibiotics but returned one week after stopping the antibiotics. He was compliant with PCP prophylaxis (dapsone) and anti-retroviral therapy. His temperature was 101, blood pressure 107/68, pulse 110, respiratory rate 25, and oxygen saturation 95% (room air). He had no thrush or enlarged lymph nodes. Crackles bronchophony, and egophony were present in the right lower lung. The cardiac, abdominal, extremity and neurological exams were normal. The arterial blood gas was pH 7.50, pCO2 32, pO2 86. The CD4 count was 3 and the viral load was 88,000 copies. The white blood cell count was 10,200 per uL, hemoglobin 7.8 g/dL, platelets 362,000 per uL. Electrolytes and urinalysis were normal. Blood and sputum cultures revealed gram positive cocci in chains. The chest x-ray showed an opacity along the right heart border that was consistent with prior radiographs. The chest CT showed consolidation in multiple segments throughout the right lung with air bronchograms. These findings were consistent with bronchiolitis obliterans with organizing pneumonia (BOOP).

CT scan of thorax.

DISCUSSION: Immunodeficient patients are predisposed to recurrent pneumonias that do not respond to antibiotic therapy. Other causes of recurrent pneumonia include malignant obstruction, fungal pneumonia, endocarditis, bacterial resistance to antibiotics, incomplete antibiotic coverage or small bronchial obstruction such as BOOP or bronchiectasis. Most cases of BOOP are idiopathic; other causes include toxic fume or dust inhalation, drug toxicity, chronic graft vs. host disease and connective tissue diseases. The diagnosis of BOOP is made by tissue biopsy that shows obliterative granulation plugs within the lumens of the small airways and concentrically scarred bronchioles. Chest CT demonstrates large areas of irregularly marginated peripheral consolidations with air bronchograms in the distribution of one bronchiole. BOOP responds well to steroid therapy along with appropriate antibiotic coverage.

**JUST ANOTHER CASE OF BRONCHITIS — OR IS IT?** A.L. Wolfert[1]; [1]University of Colorado Health Sciences Center, Denver, CO *(Tracking ID #50934)*

LEARNING OBJECTIVES: Distinguish the signs and symptoms of pulmonary embolism. Recognize the risk factors for venous thromboembolic disease. Recognize adverse effects associated with birth control pills.
CASE INFORMATION: A 39 year old female with no significant past medical history presented to an outside physician with complaints of left sided pleuritic chest pain and cough. She was diagnosed with bronchitis and intercostal muscle strain and was treated with prednisone for 5 days which relieved her symptoms. Three weeks later, she presented to our urgent care clinic complaining of a 10 day history of severe left sided chest pain associated with shortness of breath. The pain and dyspnea had begun suddenly and had gotten progressively worse. Her medications included only birth control pills which she had started 3 months prior. She denied alcohol use but reported resuming smoking 6 weeks ago. Her family history was noncontributory. On exam, she was afebrile with a pulse of 104, blood pressure of 136/87, oxygen saturation of 94%, and a respiratory rate of 24. Her heart and lung exam revealed tachycardia and decreased breath sounds and dullness to percussion in the left base. Extremities were without edema. Studies were as follows: ABG: pH 7.47, pCO2 30, pO2 65 with an A-a gradient of 19; EKG: sinus tachycardia; Chest X-ray: bilateral pleural effusions, left greater

than right; Helical CT: Multiple central, segmental and subsegmental filling defects consistent with pulmonary emboli. A wedge-shaped parenchymal defect was seen in the peripheral left lobe, consistent with a pulmonary infarct. The patient was heparinized and started on Coumadin and her birth control pills were discontinued. Factor V Leiden and homocysteine were normal. She was referred back to her primary care physician for follow up of anticoagualtion and age-appropriate cancer screening.
DISCUSSION: Winter is the time of year when physicians see many cases of cough and pleurisy. While most cases are viral illnessnes, pulmonary embolism (PE) needs to be considered in the work-up of these symptoms. The symptoms most commonly seen with PE are dyspnea, pleurisy and cough. Most pulmonary emboli are multiple and affect the lower lobes but rarely lead to infarct (<10%). The biggest risk factors for PE are immobilization, recent surgery, stroke, history of venous thromboembolism (VTE), and maligancy. Use of birth control pills carries about a 3 to 4 fold increased risk of VTE. However, the absolute risk is still extremely low at 1.0 – 1.5 per 10,000 woman-years. Women who are carriers for the factor V Leiden mutation and take birth control pills have a 35 fold increased risk. Studies suggest, however, that screening for factor V Leiden prior to starting oral contraceptives is not cost effective and even with a positive screen the risk is low. This patient's smoking may also have increased her risk of PE but the data regarding smoking and PE is not conclusive. In conclusion, PE needs to be in the differential diagnosis for cough and pleurisy, especially in an older patient on birth control pills.

**SYMPTOMATIC SIADH WORSENED BY ISOTONIC FLUID REPLACEMENT.** S. Wu[1], P. Balingit[1]; [1]UCLA San Fernando Valley Program, Sylmar, CA *(Tracking ID #51164)*

LEARNING OBJECTIVES: 1) Recognize signs and symptoms of hyponatremia; 2) Learn the key features of SIADH; 3) Learn to manage acute SIADH appropriately.
CASE INFORMATION: A 39 year old male with schizophrenia and history of alcohol abuse presented to the emergency department with midline epigastric pain, nausea, vomiting, and decreased oral intake. He reported increased belching, hiccuping, and generalized weakness. Vital signs were stable; the physical exam was unremarkable except for slight midepigastric tenderness. An abdominal CT scan showed no significant findings. An initial chemistry panel demonstrated sodium 124, potassium 3.5, chloride 57, bicarbonate 37, BUN 22, creatinine 2.8. In the emergency department, the patient received 2 liters of normal saline for hydration, compazine for nausea, and morphine for pain. A repeat chemistry panel showed worsening sodium of 123, potassium 2.5, choloride 60, bicarbonate 39, BUN 26, creatinine 2.3, serum osmolality 260 mosm/kg. Patient received another 1 liter of normal saline, and 60 meq of KCl. With fluid hydration, the patient started to become more lethargic, and had a seizure. A third chemistry panel showed further decrease of sodium to 122, potassium 2.4, chloride 66, bicarbnate 30, BUN 21, creatinine 1.8. Urine osmolality was 489 mosm/kg; urine sodium was 77 mosm/kg. At that point, the presence of SIADH was recognized, and hypertonic saline (3%) administered at 30ml/hour resulted in improvement of the patient's mental status. A fourth chemistry panel showed sodium 128, potassium 3.1, chloride 82, bicarbonate 36, BUN 15, creatinine 1.3. During hospitalization, the patient had a negative work up for the etiology of his nausea and vomiting which included an upper GI series, a barium enema, and a brain MRI. Further history from family members revealed that the patient's vomiting was self-induced, and his presenting symptoms resolved rapidly with hydration. Sodium and all other electrolytes normalized with hypertonic (3% NaCl), and then isotonic (0.9% NaCl) fluid replacement.
DISCUSSION: SIADH is one of the many causes of hyponatremia. It is characterized by 1) hyponatremia; 2) decreased serum osmolality (<280 mosm/kg) with increased urine osmolality (>150 mosm/kg); 3) absence of cardiac, renal or liver disease; 4) urine sodium usually over 20meq/L. The etiology of SIADH, in this case, was nausea, vomiting, pain, and stress. The key to correcting plasma sodium in the setting of SIADH is to give fluid with osmolality exceeding that of the urine. In the case above, the initial deterioration in serum sodium was due to administration of isotonic normal saline with osmolality of 308 mosm/kg, which, in this patient, was lower than his urine osmolality of 489 mosm/kg. This led to retention of more free water and further decrease of serum sodium. This case has raised an important learning point in correcting hyponatremia. In the setting of worsening hyponatremia despite isotonic fluid repletion, the diagnosis of SIADH must be considered, and the appropriate fluid administered.

**INTERMITTENT DYSPHAGIA IN A 44 YEAR OLD WOMAN.** J. Yazdany[1]; [1]UCSF Department of Medicine, San Francisco, CA *(Tracking ID #52391)*

LEARNING OBJECTIVES: Correlate features of dysphagia, such as difficulty swallowing solids, liquids or both, with specific clinical syndromes. Recognize the clinical diagnosis most commonly associated with intermittent dysphagia.
CASE INFORMATION: A 44 year old woman with a history of hypertension and intermittent dysphagia presented to the emergency room with inability to swallow liquids or solids for the previous eight hours. The patient recalls intermittent difficulty swallowing solids over the last six years. On several occasions, she presented to her physician, and was told her symptoms likely resulted from anxiety. She had been treated with several courses of benzodiazepenes, which provided minimal relief.
On the evening of presentation, the patient had attempted to eat a sandwich, but regurgitated the food a few seconds after ingestion. Although she normally had no difficulty drinking liquids, she now regurgitated water as well. She complained of a substernal "grabbing" sensation, but denied fevers, chills, weight loss, fatigue, nausea, heartburn, or blood loss from her gastrointestinal tract.
Past medical history included hypertension and seasonal allergies. Medications included hydrochlorothiazide, fexofenadine, and lorazepam. The patient denied ever using tobacco, and drank alcohol occasionally. Vital signs included a temperature of 36.2 C, blood pressure 151/103, pulse 103, and normal respirations. Physical examination was unremarkable. A CBC revealed a hematocrit of 46, electrolytes and a hepatic panel were normal. Chest x-ray was also normal. An esophagram revealed a large filling defect in the distal esophagus consistent with either food debris or mass lesion.
The patient was admitted to the hospital for esophagoduodenoscopy [EGD] the following morning. EGD revealed an esophageal ring (Schatzki's ring) in the lower esophagus. The patient underwent Maloney dilation and was discharged home.
DISCUSSION: Difficulty swallowing both solids and liquids often indicates a motility disorder such as achalasia, whereas difficulty with solids progressing to liquids suggests mechanical obstruction. This patient described dysphagia to solid food, consistent with her history of an esophageal ring. On the evening of presentation, however, her esophagram revealed acute mechanical obstruction by food debris, leading to transient difficulty swallowing liquids.
Intermittent dysphagia, as this patient experienced, is most commonly associated with esophageal rings, thin mucosal strictures at the gastroesophageal junction. In contrast, progressive dysphagia suggests other diagnoses such as malignancy or peptic stricture.
It is important to remember that dysphagia associated with anxiety, sometimes referred to as "globus hystericus", is a diagnosis of exclusion only. This patient was inappropriately treated with benzodiazepenes for several years before a diagnosis was made.

**SARCOIDOSIS AND GRAVES' DISEASE: AN EVOLVING ASSOCIATION.** D.A. Yehl[1], C.V. Mueller[1], R. Baughman[1]; [1]University of Cincinnati, Cincinnati, OH *(Tracking ID #50991)*

LEARNING OBJECTIVES: 1. Recognize the clinical symptoms of sarcoidosis and Graves' Disease. 2. Understand the epidemiological association of sarcoidosis and autoimmune endocrinopathy. 3. Postulate immunochemical mechanisms that may be responsible for their association.
CASE INFORMATION: A previously healthy 31 year-old AAF presented to pulmonary clinic with one month of hemoptysis, sweating, fever, chills, and an eighty pound weight loss over the previous six months. Her PE was remarkable for exophthalmos, tachycardia, cervical adenopathy, and bilateral crackles. Her laboratory evaluation revealed an ACE level of 85 units (normal value 9 – 67); CXR with bilateral symmetric mediastinal / hilar adenopathy and multifocal nodular air space disease; BAL fluid with 700 WBCs/uL (5% lymphocytes, 93% macrophages) and 5950 RBCs/uL; and transbronchial biopsy showing the presence of noncaseating granulomas diagnostic of sarcoidosis. TSH was <.03uU/mL (normal 2 – 11), freeT4 was 7.1 ng/dL (normal 0.7 – 2), and T4 uptake was >46 units; 24 hour RAI-123 thyroid uptake was 96% and showed a diffusely enlarged and symmetric gland, confirming her simultaneous diagnosis of Graves' disease. The patient was started on PTU, propranolol, and prednisone, but eventually required radioactive thyroid ablation due to refractory symptoms.
DISCUSSION: Histologic sarcoidosis of the thyroid has been well established in post mortem reports, but clinical syndromes of autoimmune thyroid disease (ATD) type 2A (Hashimoto's thyroiditis) and type 3 (Graves' Disease) have only recently received attention in sarcoidosis. Seventeen to 27% of sarcoid patients have laboratory evidence of ATD (either positive TPO-Ab or Tg-Ab or both), whereas only 10% have clinically manifest ATD — mostly Hashimoto's thyroiditis. More unusual is the association of sarcoid with diffuse toxic goiter, or Graves' Disease, where the prevalence is 2.5%. Limited experience has necessitated treating the two diseases separately, though the heightened humoral immune response and the elevated circulating immunoglobulins in sarcoidosis may be responsible for the TSH-receptor Ab responses at the heart of Graves'. A chart review of our local experience with sarcoidosis revealed 4 cases of Graves' Disease in 632 sarcoid patients, giving a prevalence of only 0.6 %, somewhat lower than the published prevalence of 2.5%. The discrepancy may be due to differences in our sarcoid population, or to undiagnosed cases or Graves' Disease. Given the high prevalence of ATD in sarcoid populations, a heightened vigilance of thyroid symptoms may elucidate further cases. And additional documentation and investigation may provide insight into the immunopathogenesis of either or both diseases.

**CA 19-9 AND BENIGN HEPATOBILIARY CONDITIONS.** H. Zakariya[1], W.A. Harb[1], F. Turfah[1], M. Arman[1], A. Delara[1]; [1]Oakwood Healthcare System, Dearborn, MI *(Tracking ID #51897)*

LEARNING OBJECTIVES: To recognize that CA19-9, a tumor marker, can be seen in high levels in benign conditions.
CASE INFORMATION: A 36-year-old white female presented with epigastric and RUQ abdominal pain. The pain was associated with nausea W/O vomiting. She complained of constipation, but had no fever or chills, hematemesis, melena or weight loss. Her physical examination was unremarkable apart from mild tenderness in the RUQ. Laboratory results showed ALT 1143 U/L,AST 1071 U/L,AP 159 U/L, Amylase 72 U/L, Lipase 31 IU/L, Bilirubin 2.7 Mg/dl. Abdominal U/S showed prominent gall bladder and CBD without evidence of cholelithiasis. HIDA scan showed non-visualization of the intra and extrahepatic biliary ducts. CT of the abdomen revealed moderate intrahepatic biliary and gall bladder distension and a 2 Cm ovoid soft tissue density projecting near the gall bladder in the area of the porta hepatis. A CA 19-9 level was 279.4 (normal <37.0). An attempted CT guided biopsy of the mass failed to identify any such mass. ERCP showed a CBD stone, which was removed through a sphincterectomy followed by a stent placement. The patient continued to complain of abdominal discomfort until a laproscopic cholecystectomy relieved her symptom. Pathology report showed acute and chronic cholecystitis with cholelithiasis. No malignant cells were identified A CA 19-9 level post discharge was 5.2.
DISCUSSION: CA 19-9 is a tumor marker. It may be elevated in patients with cholangiocarcinoma, breast and pancreatic cancers, however biliary tract obstruction with cholangitis associated with a lesion other than cancer may also cause elevated levels of CA 19-9. Very high levels of tumor markers are often thought of as pathognomonic for malignancy. We present this case because it illustrates a benign hepatobiliary condition associated with high levels of a tumor marker that resolved post operatively.

**SYPHILIS IN AN HIV POSITIVE PATIENT: THE TRUE GREAT IMITATOR.** D. Zalenski[1], R.M. Arnold[1], R. Granieri[1]; [1]University of Pittsburgh, Pittsburgh, PA *(Tracking ID #50658)*

LEARNING OBJECTIVES: 1. Recognize the clinical presentation of syphilis in HIV. 2. Treat syphilis in HIV-seropositive patients.

CASE INFORMATION: 41-year-old homosexual male with a 12 year history of HIV (CD4 = 350, VL < 50) was admitted with 7 weeks of fever, myalgias, and weight loss. He was initially seen by his pulmonologist and started on trimethoprim-sulfamethoxazole (TMP-SMZ). A diffuse macular rash developed and medication was stopped. Fever and weight loss continued and he was admitted for evaluation. PMH was notable for hypersensitivity pneumonitis secondary to bird fancier's lung and anal warts. Meds included ritonavir, indinavir, lamivudine, zidovudine, and dronabinol. He worked in a pet store, cleaned reptile cages, kept cats, rats and mice at home and enjoyed camping in West Virginia. On exam, he was afebrile with a diffuse blanching macular rash over trunk and extremities, but no mucous membrane involvement. He had cervical and inguinal lymphadenopathy. The remainder of his exam was normal. CBC, CK, LD were normal and blood/urine cultures, RF, ANA, borrelia and lyme titers were negative. ESR was 107. One week later, RPR was reactive at 1:512 and the rash had spread to his palms and soles. CSF revealed pleocytosis, protein 82 and a negative VDRL. He was treated with IV penicillin and developed a fever to 104 and generalized achiness with the initial dose but completed a 14 day course without difficulty. In retrospect, the patient recalled a sexual encounter and a genital ulcer preceding these symptoms.
DISCUSSION: Syphilis is an infection with many faces. Populations at highest risk include homosexual males. A strong association exists between HIV and syphilis; the discovery of one should prompt an investigation for the other. Primary syphilis begins 2 – 6 weeks after exposure as a painless papule that progresses to a chancre. Patients with HIV, regardless of CD4 count, are more likely to have an accelerated course to secondary stage and develop neurosyphilis at a higher rate. Signs and symptoms of secondary syphilis include malaise, arthalgias, generalized lymphadenopathy, and maculopapular rash involving the entire body, including palms and soles. One dose of benzathine penicillin G IM is standard therapy for primary, secondary, or early latent disease. If doubt persists about duration of illness, 3 weekly injections of benzathine penicillin are recommended. All HIV-positive patients should be screened for CNS involvement. Treatment for neurosyphilis is 14 days IV penicillin. His febrile response to first dose of penicillin was a Jarisch – Herxheimer reaction. VDRL titers should decline four fold over 1 year. Neurosyphilis requires follow up lumbar puncture every 6 months for 2 years. Treatment failures are more common in the setting of HIV. Our patient's presentation, particularly his exposure to animal pathogens, previous allergic reaction, and TMP-SMZ use, lengthened the differential diagnosis. However, he displayed classic features of secondary syphilis. Follow-up RPR titer was 1:8.

**AN UNUSUAL CASE OF CHRONIC ABDOMINAL PAIN.** C.J. Zawitz[1], H.D. Day[2]; [1]University of Pittsburgh Medical Center, Pittsburgh, PA; [2]University of Pittsburgh, Pittsburgh, PA *(Tracking ID #47132)*

LEARNING OBJECTIVES: 1. Define porphyria. 2. Discuss precipitating factors. 3. Identify treatment strategies for the different types of porphyria.
CASE INFORMATION: A 21-year-old male with no significant past medical history presented with two years of recurrent crampy midepigastric/periumbilical pain, nausea and vomiting. During a series of six outside admissions, the patient had an extensive evaluation including abdominal ultrasound, upper GI series, EGD with gastric biopsy and several CT scans. Despite empiric treatment with proton pump inhibitors and an elective cholecystectomy, the episodes continued. The only significant findings on physical exam were pain out of proportion to exam and laboratory findings of an elevated total bilirubin (2.9 – 3.9), mostly unconjugated. During the course of hospitalization the pain remitted spontaneously as it had in other admissions. However, our patient was diagnosed with hereditary coproporphyria as determined by elevated urinary coproporphyrins. Further probing revealed that the other family members had had similar episodes.
DISCUSSION: The common causes of recurrent abdominal pain are multiple including non-ulcer dyspepsia, ulcer, cholecystitis, etc. Recurrent abdominal pain not amenable to therapy requires one to pursue the possibility of porphyria, a genetic or acquired deficiency of the heme biosynthetic pathway leading to an accumulation of heme precursors in the tissues. Resulting symptoms include relapsing abdominal pain photosensitivity, psychiatric disturbance, skin lesions, and, rarely, death. Precipitating factors include alcohol/drug use, starvation, stress, surgery, infection, and exposure to strong UV light. Diagnosis is made first by screening for urine porphyrins (may be negative during remission). A 24-hour urine or stool specimen may also make additional diagnosis. Treatment is dependent on the type of porphyria. Photocutaneous porphyria is treated with avoidance of UV light, activated charcoal and b-carotene. The neurovisceral type is treated with the removal of precipitating factors, increased caloric intake and pain control.

**REFRACTORY REFLUX ... IS SURGERY THE ANSWER?** R. Zeiger[1]; [1]University of California, San Francisco, San Francisco, CA *(Tracking ID #50696)*

LEARNING OBJECTIVES: 1) Assess whom to refer for antireflux surgery. 2) Recognize that surgery may alleviate symptoms of gastroesophageal reflux disease (GERD) but probably does not prevent esophageal cancer.
CASE INFORMATION: A 55-year-old man with rheumatoid arthritis and depression presented with heartburn and regurgitation for 2 – 3 years, worse in the last 6 months. He denied dysphagia, symptoms of gastrointestinal bleeding, or weight loss. Physical exam was remarkable only for mild joint deformities consistent with rheumatoid arthritis. H2 blockers provided no relief, and high dose proton pump inhibitor (PPI) provided some but inadequate relief. Upper endoscopy (EGD) 4 years prior showed mild Candidal esophagitis, which was treated. EGD 2 years prior revealed no esophagitis, but was positive for H pylori, which was also treated. Manometry showed normal lower and upper esophageal sphincters and a mild non-specific decrease in esophageal motility. Esophageal pH monitoring demonstrated a pathological amount of reflux. At surgical consultation, the patient was offered fundoplication. He asked if surgery would resolve his symptoms and prevent esophageal cancer.
DISCUSSION: Though GERD is a common diagnosis with straightforward initial treatment options, refractory reflux presents a management challenge. When GERD is suspected but EGD does not show esophagitis, or when symptoms are atypical or unresponsive to PPIs, patients should undergo pH monitoring. Esophageal manometry is performed prior to antireflux surgery to identify patients with inadequate peristalsis who are at high risk for post-operative dysphagia. Barrett's esophagus probably gives rise to most adenocarcinoma of the esophagus. Antireflux surgery has been thought to minimize the risk of malignant transformation. Two large trials have compared surgical and medical therapy for GERD. In 310 Swedish patients with erosive esophagitis randomized to open surgery or omeprazole, surgery resulted in significantly longer time to treatment failure (Lundell, 2001). However, there was no difference when high dose PPI was allowed. Malignancy rates were not evaluated. A follow-up of the VA Cooperative Trial compared the 10 year outcome of open surgery vs. medical therapy in 129 of the original 247 study participants (Spechler, 2001). While 92% of medical vs. 62% of surgical patients used medications regularly, there was no difference in esophagitis, strictures, or adenocarcinoma. Patients with Barrett's at baseline developed adenocarcinoma at an annual rate of 0.4% vs. 0.07% if no Barrett's at baseline. Again, there was no difference between medical and surgical groups. The absolute risk of adenocarcinoma for severe symptomatic GERD is 0.02 – 0.04% per year (Kahrilas, 2001). Thus GERD confers a finite risk of adenocarcinoma and Barrett's confers a higher risk. However, surgery has not been shown to decrease this risk. This data was presented to the patient and he decided to decline surgery, continue high dose PPI, and focus on behavioral modification.

**DOC, AM I ALLERGIC TO MY BABY?** J. Ziouras[1], M. Mcneil[1]; [1]University of Pittsburgh, Pittsburgh, PA *(Tracking ID #48054)*

LEARNING OBJECTIVES: 1. To recognize the differential diagnosis of puritis in pregnancy. 2. To recognize the clinical manifestations of pruritic urticarial papules and plaques of pregnancy (PUPP). 3. To state the pathophysiology and treatment of PUPP.
CASE INFORMATION: The patient is a 29 year old healthy female physician G1P0 with a history of atopy who presented at 38 weeks gestation complaining of significant pruritus. She states that the pruritus began in her abdominal areas over her striae, with progression to her upper thighs as well as her hands. Papules were present over the affected areas. The symptoms were relieved with showers, however lotion, diphenhydramine and low-potency topical steroids had done little to relieve her symptoms. Discussion with the nurse mid-wife led to the diagnosis of PUPP and the patient was reassured of the benign nature of this condition. The symptoms resolved at 40 weeks. She delivered at 42 weeks without further complications and no recurrence of her symptoms.
DISCUSSION: Pruritic Urticarial Papules and Plaques of Pregnancy (PUPP) is the most common dermatosis of pregnancy occurring in 1/160 to 1/420 pregnancies, 76% of which are primagravida. It most often presents in areas of the abdominal striae with occasional progression to the extremities. The papules may coalesce and form hives in the affected area. It is unclear which females will be affected by this disorder however it appears to be associated with a history of atopy, excessive stretching of the skin and an immunologic phenomenon involving fetal DNA in the affected areas. The differential diagnosis includes erythema multiforme, a drug reaction, scabies, a viral syndrome or pemphigoid gestationis, the latter of which can be distinguished from PUPP by direct imunofluorescence. It occurs in the third trimester and often resolves after delivery although some individuals may experience onset or worsening of their symptoms upon delivery. Treatment includes anti-histamines, high potency topical steroids and occassionally systemic steroids if symptoms are severe enough. Rarely is induction indicated. Fortunately, PUPP is unlikely to resurface during subsequent pregnancies and offers no harm to the fetus or mother.

**RENAL ARTERY STENOSIS.** J. Ziouras[1], R. Granieri[1]; [1]University of Pittsburgh, Pittsburgh, PA *(Tracking ID #48062)*

LEARNING OBJECTIVES: 1. To recognize patients at risk for atherosclerotic renal artery stenosis (ARAS). 2. To recognize the evaluation and treatment of ARAS.
CASE INFORMATION: B.S. is a 62 yo male with a history of diabetes, hypertension, peripheral vascular disease and hypercholesterolemia who presented for further evaluation of his longstanding hypertension. His hypertension had been increasingly difficult to control over the past three months. Despite being on clonidine .2mg PO TID, lisinopril 80mg PO QD, and felodopine 20mg PO QD, his blood pressures ranged from 152/74 to 194/52. On physical exam, he had bilateral carotid bruits, a II/VI holosystolic murmur best heard at the apex, and bilateral abdominal bruits. He was referred for further diagnositc testing for possible ARAS.
DISCUSSION: Althought ARAS is present in less than 1% of the hypertensive population, its prevalence rises to 27 – 45% in high risk patients and those with severe or refractory hypertension. It is the most common cause of secondary hypertension after alcohol and obesity. It should be suspected in patients with moderate to severe hypertension who present with other atherosclerotic lesions, an acute increase in creatinine (especially after the initiation of an ACE inhibitor), asymmetric kidneys and episodes of acute pulmonary edema or congestive heart failure. Although identification of patients at risk for ARAS is straightforward, there is considerable controversy in the evaluation and treatment of ARAS. The gold standard for diagnosis is renal arteriography. However, is can also be suggested by findings of intravenous pyelogram, captopril/renin test, captopril renogram, duplex doppler ultrasound, MRA or a sprial CT scan with CT angiography. MRA is gaining increased popularity, with some studies showing a sensitivity of 100%. Treatment options include medical management, angioplasy with or without stenting, or surgical intervention. Each treatment modality has its shortcomings. Medical management appears to be the most beneficial for majority of patients. It has been shown to be equally effective as angioplasty and is appropritate in patients with unilateral disease, reasonably well controlled blood pressure and stable renal function. Percutaneous angioplasty with stenting is approriate in individuals with worsening renal function, ostial lesions or bilateral kidney disease. Studies have indicated that this procedure often leads to modestly improved blood pressure control with less antihypertensive medications. Bypass surgery carries the risk of cholesterol emboli, bleeding and infections. A recent study undertaken to help clinicians determine who would benefit most from further evaluation and treatment found that neither the size of patient's kidneys nor their degree of hypertension was indicative of the severity of their ARAS. Rather it is the presence of atherosclerotic lesions at distant sites, the serum creatinine plus the patient's comorbid conditions that indicate a worse prognosis. These patients often require further evaluation.

**ABDOMINAL PAIN IN A 36 YEAR OLD PREGNANT WOMAN.** J. Ziouras[1], R. Granieri[1]; [1]University of Pittsburgh, Pittsburgh, PA *(Tracking ID #48068)*

LEARNING OBJECTIVES: Identify and treat hemolytic anemia, elevated liver enzymes and low platelet syndrome (HELLP).
CASE INFORMATION: C.M. is a 28 yo G3P3 woman with a history of migraines and gestational diabetes who presented to an outside hospital at 36 weeks gestation complaining of acute onset of abdominal pain, headache, nausea and vomitting. The patient was noted to have a blood pressure of 190/110 as well as proteinuria. She was diagnosed with preeclampsia and abruptio placentae and underwent emergent cesarean section. She was placed on IV magnesium and a nipride drip. Lab values revealed AST of 705, ALT of 464, Cr. of 0.9, platelets of 151,000 and a hemoglobin of 13. On hospital day number two, her status worsened. The AST was 2808, ALT 1580, Cr. 4.9, platelets 25,000 and a hemoglobin 7.6. The peripheral blood smear revealed hemolysis. The patient developed worsening mental status and acute onset of shortness of breath. A VQ scan was low probability for pulmonary embolism and a CT scan of the chest showed pulmonary edema. The patient was supported with antihypertensive medications and transfusions and was transferred to a tertiary care facility. She was stabilized with complete normalization of her lab values and discharged home in good condition.
DISCUSSION: HELLP is a syndrome that affects pregnant women. It occurs 20% of the time in preeclamptic women and usually presents late in the third trimester. As in our patient, she may feel acute onset of midepigastric or RUQ abdominal pain, nausea, vomiting, and general malaise or she be asymptomatic. HELLP is diagnosed by laboratory abnormalities that include microangiopathic hemolytic anemia, a platelet count of <100,000, LDH level >600IU/L, T. bili > 1.2mg/dL and an AST level >70 IU/L. A CT or MRI may be warranted if hepatic infarct, hematoma or rupture is suspected. Complications include pulmonary edema, acute renal failure, ascites, abruptio placentae, and DIC, of which our patient had three. Treatment is predominantly delivery of the fetus. Most women will have a normal vaginal delivery after induction unless fetal or maternal stress develops. There is a role for corticosteroids and plasma exchange in certain situations. Recurrence with subsequent pregnancies is uncommon. HELLP can be fatal and prompt recognition and treatment is key. Since these patients may first present to their primary care physician, it is paramount for internists to be familiar with this entity.

**GROIN PAIN AFTER CESAREAN SECTION.** J. Ziouras[1], R. Granieri[1]; [1]University of Pittsburgh, Pittsburgh, PA *(Tracking ID #48074)*

LEARNING OBJECTIVES: 1. To diagnose deep venous thrombosis (DVT) in the pregnant patient. 2. To treat DVT in the pregnant patient. 3. To recognize the need for thromboembolism prophylaxis in the pregnant patient.
CASE INFORMATION: 28 year old female G1P1 presented to her PCP after discovering she was pregnant with her second child. Her first pregnancy was uncomplicated except for a cesarean section secondary to breech presentation. Two weeks after surgery, the patient complained of increasing groin pain and was treated with non-steroidals. The pain worsened and she presented to the ER where she was diagnosed with a DVT. The patient was hospitalized, treated with IV heparin followed by a six month course of warfarin. She is wondering if preventative measures need to be taken at this time.
DISCUSSION: Venous thromboembolism is the second most common cause of mortality in pregnant women with an incidence rate of 0.5%. It is five times more common in pregnant than non-pregnant women. Generally, the evaluation and treatment of DVTs is straightforward. However, with her two pregnancies, our patient exemplifies 3 dilemmas in the management of DVT in pregnancy: the diagnosis, the treatment and the role of venous thromboembolism prophylaxis in subsequent pregnancies. The diagnosis of DVT during pregnancy is challenging as pregnant patients often have many of the symptoms of DVT at baseline (tachycardia, dyspnea, lower extremity swelling). Once a DVT is suspected, certain diagnostic studies may potentially pose harm to the fetus. Ultrasound with dopplers avert the radiation exposure risk of venography, but may not be able to detect calf or iliac vein abnormalities. Treatment options during pregnancy include unfractionated heparin (UH) or low-molecular weight heparin (LMWH). If a DVT has been detected, treatment is IV heparin followed by subcutaneous heparin to achieve PTT of 1.5 – 2.0 times normal. UH has been associated with bleeding complications, osteoporosis and heparin induced thrombocytopenia in approximately 15% of patients. LMWH has been associated with less morbidity, easier dosing, and less injections. However, there is no medication that can reverse this drug. This may present difficulty if an emergent cesarean section is indicated. Warfarin is contraindicated in pregnancy as it is a tetratogen. Thrombolytics and embolectomy should be considered when other options have failed. Patients with a history of deep venous thrombosis in the past should be placed on prophylactic therapy during subsequent pregnancies. However, the presence of thrombophilia alone is not an indication to initiate prophylactic therapy. A recent study showed only 1 female out of 400 with factor V leiden mutation developed a DVT during her pregnancy. Other risk factors for development of a deep venous thrombosis during pregnancy include a family history, advanced maternal age, and prolonged bed rest.

**PALLIATIVE CARE INTERVENTION WITH A CHINESE PATIENT WITH ACUTE MYELOGENOUS LEUKEMIA.** D. Zipkin[1], E. Basilico[1]; [1]New York University, New York, NY *(Tracking ID #51405)*

LEARNING OBJECTIVES: 1. Recognize the importance of a unified approach to end of life care. 2. Recognize language and cultural differences as potential barriers to effective and timely palliative care.
CASE INFORMATION: A 54 year old Mandarin speaking woman was admitted to the hospital with AML blast crisis. Having failed chemotherapy 7 months prior, a salvage regimen was given. She was pancytopenic and febrile, unresponsive to blood products and antibiotics. Housestaff requested a palliative care consultation to address further plans for treatment and end-of-life care and to facilitate communication with the hematology team. Our palliative care service is comprised of housestaff and attendings in the departments of Primary Care and Oncology, Social Work, and Chaplaincy. We initiated a discussion of the goals of therapy among the housestaff and hematology teams. The palliative nature of chemotherapy had not been communicated to the patient, nor had her goals been elicited. At an initial meeting with a translator we explored the patient's expectations of therapy and her social supports. Her husband was the primary family decision maker, and they both hoped for cure. A second meeting with the palliative care, housestaff, and hematology teams, the patient, and her husband, served to explain the current state of her illness, including her lack of response to treatment. We sat with them while they cried together. The patient stated that if we could not cure her, then she wanted to spend her remaining time with her children. The patient and her husband stated that they would not want resuscitation, but they wanted time to discuss it further with their eldest son. Three days after our meeting, all of the patient's children visited with her in the hospital. She later became more ill and was transferred to the Medical ICU where a DNR order was signed, and she passed away with her children beside her.
DISCUSSION: Caring for terminally ill patients should include a clear discussion of goals and wishes between caregivers and patients. Team communication can prevent conflicting messages for the patient and help address end of life issues early. Working within this patient's language and social structure allowed her to make important decisions regarding her care. In this case, by using a multidisciplinary approach, we enabled this patient to see her children before she passed away, and helped her family to be more emotionally prepared for her death.

**CASE REPORT OF RHEUMATOID VASCULITIS RESPONDING TO INFLIXIMAB TREATMENT.** F. Alfayoumi[1], H. Diamond[1]; [1]The Western Pennsylvania Hospital, Pittsburgh, PA *(Tracking ID #52060)*

BACKGROUND: Rheumatoid vasculities is a small vessel vasculitis that occurs in approximately 2 – 5% of patients with long-standing rheumatoid arthritis, the major clinical manifestations are cutaneous rash and ulceration and systemic disease most often involving peripheral nerves, eyes and the heart. Overall prognosis is very poor with a high mortality requiring high dose continuous cyclophsphamide with serious risk of toxicity. We present a case of 82 years old female with long standing rheumatoid arthritis who developed rheumatoid vasculitis manifested as livido reticularis, cutaneous ulcerations and mononeurities multiplex while being treated with methotrexate and corticosteroids for her Rheumatoid arthritis. Given the toxicity and complications associated with cyclophosphamide treatment, Infliximab may be considered as a first choice alternative to cyclophosphamide for treatment of rheumatoid vasculitis.
METHODS: The vasculitis was treated with cyclophosphamide. While on this treatment, the vasculitis remained active with new skin lesion (ulcer) appeared on the supramalliolar area. Cyclophosphamide was discontinued and infliximab started. Patient showed an excellent response with healing of her cutaneous ulceration, resolution of livido reticularis and Improvement of the mononeurities neuropathy.
CONCLUSION: Infliximab is chimeric monoclonal antibody that binds to human tumor necrosis (TNF) factor alpha-receptor sites thereby interfering with endogenous TNFalpha activity, which contributes to activation of neutrophils, enhancement of migration of leukocytes and induction of the acute phase reactants and tissue's degrading enzymes.

**ACUTE MYOCARDIAL INFARCTION DUE TO LEFT MAIN CORONARY ARTERY THROMBUS.** F. Alfayoumi[1], H. Shah[1], F. Khairallah[1]; [1]The Western Pennsylvania Hospital, Pittsburgh, PA *(Tracking ID #52067)*

BACKGROUND: 31 year-old-male with PMHx of non-Hodgkin lymphoma status post bone marrow transplantation (1999) complicated by graft vesus host disease (GVHD) of the skin presented to the emergency department with acute Inferolatreal myocardial infarction. Patient did not have any major risk factors for coronary artery disease. Pt was started on Aspirin, B Blocker and heparin and sent for emergency cardiac catheterization. The later showed distal occlusion of the LAD and a free-floating thrombus in the left main coronary artery occupying 50 – 60% of this vessel and no evidence of atherosclerotic disease in the other vessels. Primary antiphospholipid syndrome is a syndrome, which is characterized by the presence of lupus anticoagulants and antiphospholipid antibodies with no evidence of systemic lupus erythematosus (SLE). These anticoagulants although prolong PTT, the seeming paradox is that their presence in the patient circulation appears to be associated not with bleeding but with tendency to thrombosis. It is expected that this is the first case reported for Primary antiphosphlipid antibody syndrome presenting with acute MI due to left main coronary thrombus as the first clinical presentation of the syndrome.
METHODS: Intra-aortic balloon pump (IABP) was inserted and patient underwent emergency cardiac bypass surgery. Laboratory investigations for hypercoagulable state revealed prolonged PTT not changing with mixing patient's serum with plasma & high titer for antiphospholipid antibody. Based on these findings patient was diagnosed with primary antiphospholipid antibody syndrome & was started on warfarin. Pt tolerated the procedure with no complication and was discharged 3 days after on appropriate medications.
CONCLUSION: Primary antiphospholipid syndrome is a syndrome, which is characterized by the presence of lupus anticoagulants and antiphospholipid antibodies with no evidence of systemic lupus erythematosus (SLE). These anticoagulants although prolong PTT, the seeming paradox is that their presence in the patient circulation appears to be associated not with bleeding but with tendency to thrombosis. It is expected that this is the first case reported for Primary antiphosphlipid antibody syndrome presenting with acute MI due to left main coronary thrombus as the first clinical presentation of the syndrome.

**SEVERE ATHEROSCLEROSIS MISTAKEN FOR CONVERSION DISORDER.** P. Entler[1], T. Patton[1], R. Chakrapani[2]; [1]The Western Pennsylvania Hospital, Pittsburgh, PA; [2]West Penn Allegheny Health System, Pittsburgh, PA *(Tracking ID #52069)*

BACKGROUND: A 59-year-old female with history of hypertension and tobacco abuse presented to Emergency Department (ED) with 1 month history of numbness and tingling in left hand, memory problems and difficulty ambulating. Initial exam by ED unremarkable other than flat affect and left sided weakness although the patient's efforts were questioned by the examiner. A provisional diagnosis of conversion disorder was made.
METHODS: Admitting exam, however revealed no palpable pulses in right radial, brachial or carotid arteries and a loud left carotid bruit. Blood pressure readings of the right and left were 70/

40 and 120/60 respectively. Several months prior to admission similar complaints were evaluated with an ESR, antiphospholipid antibody titers, anti-Ro/La, lyme titers, SPECT imaging, TSH, and CSF examination, all of which were normal. An MRI/MRA of brain revealed a subacute right frontal infarction and loss of flow in the right anterior cerebral artery. An aortogram showed complete occlusion of the brachiocephalic artery and 80% occlusion of the left subclavian artery with extensive collateral vessel formation. A right femoral artery BP of 210/120 was also noted indicating the severe nature of the upper extremity atherosclerosis. A stent was successfully placed in left subclavian with restoration of blood flow. The patient subsequently had an ascending aorta to right subclavian to right carotid bypass and her symptoms improved.
CONCLUSION: This case accentuates the importance of a detailed physical exam as well as respecting each patient complaint as being serious despite initial prejudices.

### NON-CARDIOGENIC PULMONARY EDEMA WITH ACUTE PANCREATITIS FROM CRACK COCAINE.

P. Entler[1], K. Clarke[1]; [1]The Western Pennsylvania Hospital, Pittsburgh, PA *(Tracking ID #52085)*

BACKGROUND: A 47 y.o. African American female presented to Emergency Department with pleuritic chest pain, SOB and RUQ abdominal pain beginning a few hours prior to presentation. The patient had history of Hepatitis C, hypertension, endocarditis and cholecystectomy. Initial exam revealed stable vital signs, conversational dyspnea, bibasilar crackles and RUQ abdominal tenderness. Electrocardiogram was normal and CXR showed bilateral interstitial edema. Labs were pending and a presumptive diagnosis of congestive heart failure was made.
METHODS: The patient was given nitroglycerin, furosemide and morphine without improvement. An arterial blood gas revealed a p02 of 50 and a diagnosis of pulmonary embolism was entertained. Other labs included a Chem-7, CBC and cardiac enzymes all of which were normal. Abnormal results included AST = 73, ALT = 52, LDH = 1891, Amylase = 351 and Lipase 1937. These labs were all rechecked to rule out spurious lab results and again all were abnormal. A high resolution CT scan of the chest and abdomen was unremarkable other than bilateral airspace disease making PE less likely as well as necrotizing pancreatitis. Trans-thoracic echocardiography was unrevealing. Upon further questioning, the patient admitted to smoking crack cocaine thirty minutes prior to the onset of her symptoms. The following day, the patient's pancreatic enzymes were normal with no abdominal tenderness. A diagnosis of non-cardiogenic pulmonary edema with acute pancreatitis was made.
CONCLUSION: It was hypothesized that the patient's episode of acute pancreatitis was caused by a transient ischemia secondary to cocaine use. Only 2 such cases have been reported in medical literature.

### SUBCUTANEOUS MAGNESIUM INFUSION FOR CHRONIC HYPOMAGNESEMIA.

S. Gao[1], W.J. Dana[1]; [1]The University of Texas M D Anderson Cancer Center, Houston, TX *(Tracking ID #52145)*

BACKGROUND: A 39-year-old female with anal cancer developed severe renal magnesium wasting syndrome secondary to cisplatin containing chemotherapy. Persistent hypomagnesemia (level <1.0 mg/dl) could not be corrected by magnesium sparing diuretics, oral magnesium replacement, nor daily intramuscular magnesium injection. To maintain a normal magnesium level she required a continuous intravenous magnesium infusion via an indwelling venous catheter. During a one-year period she had frequent ER visits and hospitalizations due to line sepsis as well as symptoms of hypomagnesemia.
METHODS: A trial of subcutaneous infusion of magnesium sulfate (2 grams of magnesium sulfate in 20 ml of H20 infused via a micro-pump over 10 – 12 hours every night) was given along with Slow-Mag 535 mg by mouth three times a day and amiloride 10 mg by mouth twice a day. During the first three months the magnesium level was between 1.4 mg/dl and 2.1 mg/dl without any significant complications. The only complaint was mild tenderness at the infusion site for the first few hours in the morning.
CONCLUSION: A common complication of cisplatin chemotherapy is renal tubular injury leading to increased urinary magnesium excretion. Some patients remain persistently hypomagnesemic for years after completion of therapy. Hypomagnesemia can result in serious complications including life threatening cardiac arrhythmias. We report a novel approach to replacing magnesium with minimal side effects and improvement in the patient's quality of life.

### BEYOND THE TRIPLICATE: HYDROXYUREA USE IN SICKLE CELL ANEMIA AND HEMOGLOBIN SC DISEASE.

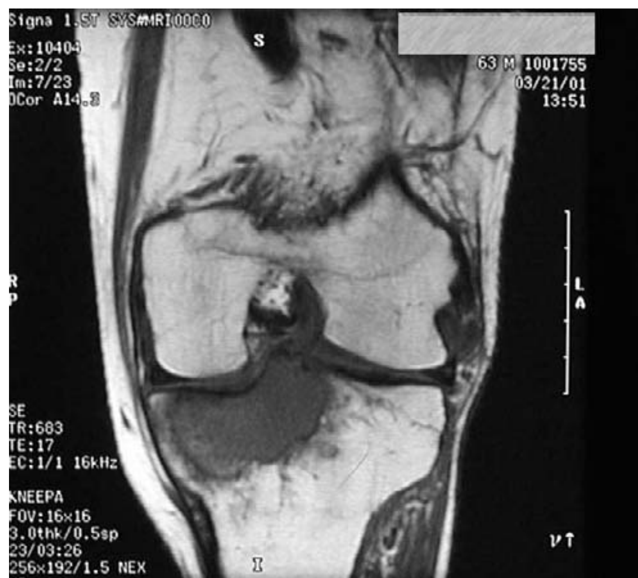
J. Heidmann[1]; [1]University of California, San Francisco, San Francisco, CA *(Tracking ID #50753)*

LEARNING OBJECTIVES: (1) Recognize the mechanism of hydroxyurea (HU) in sickling disorders, (2) Recognize potential risks and benefits of HU therapy, (3) Identify appropriate patients in which to start HU therapy.
CASE INFORMATION: A 37 y/o man with severe hemoglobin SC disease presents for analgesic refill, status post discharge from the hospital for a painful crisis. He has recurrent hospitalizations for painful crises, averaging once per month. He has a h/o bilateral avascular necrosis of the femoral and humeral heads. Current medications include MS Contin, Roxanol, folate and MVI. He has a history of intranasal cocaine use which sometimes precedes painful crises, and he is marginally housed. Exam is unremarkable. Laboratory values include: Hct 34, WBC9.9, Reticulocytes 171, Fetal hemoglobin (HbF) <1.0%. The patient is started on hydroxyurea therapy, with the goal of decreasing painful episodes and thus number of hospitalizations.
DISCUSSION: Hydroxyurea (HU) is a cytotoxic agent traditionally used for treatment of Chronic Myelogenous Leukemia and Polycythemia Vera, approved by the FDA in 1998 as therapy for patients with Sickle Cell Anemia (SCA). HU promotes production of Hb F(a2y2) by recruiting proliferation and differentiation of erythrocyte precursors with y-chain synthesis otherwise lying dormant. The y-chain of Hb F interferes with polymerization, and thus with sickling of sickle hemoglobin (HbS). [HbF] is inversely proportional to frequency of painful crises in SCA, with a RCT demonstrating a 50% reduction in median crisis rate in adults with SCA with a baseline of ≥3 painful crises per year. HU was also found to decrease need for transfusions, episodes of chest crises, and to decrease hospitalizations. HU causes myelosuppression, its main adverse side effect; decreased PMN count and reticulocytes, and induction of macrocytosis may also contribute to decrease in symptoms and complications of SCA. Adults with Hb SC disease have little change in Hb F with HU therapy in small trials, and no clinical benefits demonstrable, however mechanistically it may potentially benefit some of these patients, and larger studies are needed in adults. Children with Hb SC disease have been shown to have less severe and fewer painful episodes with HU therapy.

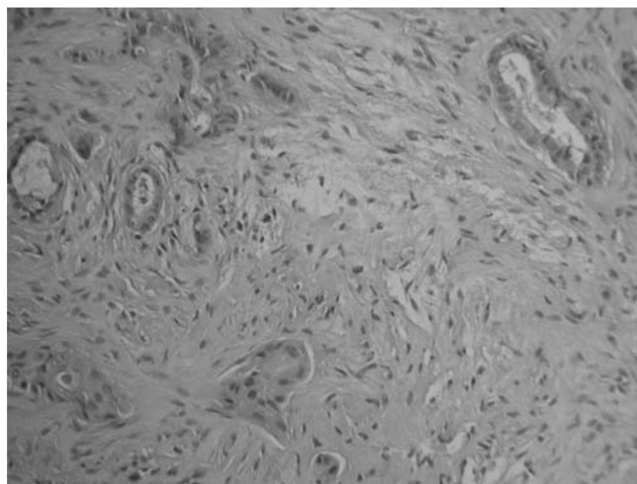
### KNEE PAIN AS AN INITIAL PRESENTATION OF BRONCHOGENIC CARCINOMA.

P. Kapoor[1], R. Kabra[1], P. Radhakrishnan[1], M. Yungbluth[1]; [1]St. Francis Hospital, Evanston, IL *(Tracking ID #50702)*

LEARNING OBJECTIVES: To recognize the possibility of metastases in evaluating joint pain.
CASE INFORMATION: A 63-year old white man presented with one month history of left knee joint pain and stiffness. The pain was sharp,aggravated by walking and transiently relieved with non steroidal anti-inflammatory drugs. There was no history of trauma, fever, weight loss or anorexia. The patient was a smoker with history of chronic obstructive pulmonary disease, hypertension and smokers' cough. On examination, the left knee was slightly swollen, warm and diffusely tender especially over the medial aspect. There was no redness. The range of motion was decreased in all directions. Tenderness over the third metacarpal of the left hand was also noted. The blood tests revealed an ESR of 50 and alkaline phosphatase of 109. X-Ray of the left knee showed narrowing of the medial compartment without any fracture. MRI of the knee showed a soft tissue mass involving the medial aspect of the proximal tibia. X-Ray of the left hand revealed a lytic lesion in the head of the third metacarpal bone. CT scan of the thorax revealed a mass in the upper lobe of the right lung and a pleural based mass posterior to the lower lobe of the left lung. A biopsy of the chest wall mass demonstrated a moderately differentiated invasive adenocarcinoma. The bone scan showed an increased uptake in the proximal part of left tibia, left hand, left eighth rib and right fifth rib. The patient was referred for radiation and chemotherapy.




-MRI of left knee showing tibial mass.



-Biopsy of chest wall tumor showing adenocarcinoma of lung.

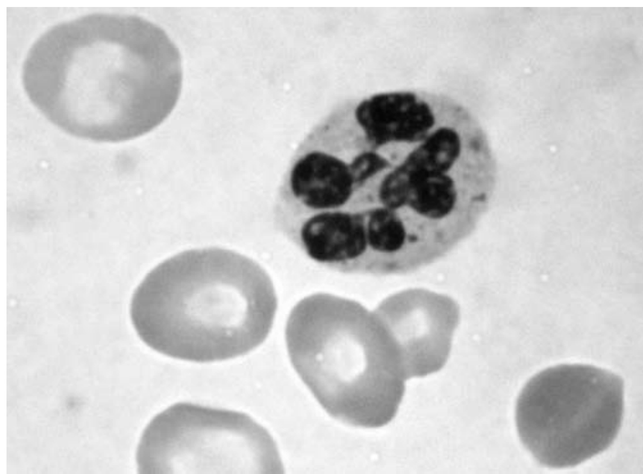
DISCUSSION: Appendicular metastases are rarely the initial presentation of metastatic lung cancer. There are case reports of bronchogenic carcinoma presenting as metastases to distal phalynx, tibia, patella and metatarsal bones. They are usually mistaken for more benign processes such as infection trauma, inflammatory arthritis, osteomyelitis or gout. Persistent symptoms, unresponsiveness to conservative therapy, or prior history of malignancy should prompt a physician to consider metastases when evaluating such a patient. This will expedite the diagnosis and approriate symptomatic treatment of this entity. Appendicular metastases have been treated with various modalities including systemic chemotherapy, curretage, amputation and radiation therapy. This patient's knee pain decreased significantly with radiation therapy.

**A COMMON PRESENTATION OF A RARE INTRACEREBRAL TUMOUR.** W. Mccauley[1], R. Chakrapani[1]; [1]The Western Pennsylvania Hospital, Pittsburgh, PA *(Tracking ID #52075)*

BACKGROUND: A 37-year-old African-American female presented to the hospital after a witnessed grand-mal seizure. She had no significant past medical history, and was on no regular medications. Her grandmother had a history of a seizure disorder. Recently she had been drinking approximately 40 units of alcohol per week. She smoked 20 cigarettes per day and used marijuana occasionally. On presentation she was alert and orientated. No focal abnormality was demonstrable on neurological examination. Her serum biochemistry was within normal limits. An EEG showed some mild left frontal lobe slowing, but no focal or epileptiform features were seen. A CT scan of her head revealed a 2 × 2 cm mass in the left frontal lobe. A subsequent MRI demonstrated that the lesion was cystic in nature and was associated with localized edema.
METHODS: Treatment with IV dexamethasone and IV Phenytoin was initiated in the ER. Two days later the patient underwent craniotomy and excision of the mass. Her post-operative course was uneventful. She Was discharged five days later on phenytoin and a tapering dose of steroids. The pathology of the tumor was consistent with a gemistocytic astrocytoma, grate IV.
CONCLUSION: This rare tumor, (accounting for 9 – 19% of all astrocytomas) is defined histologically as a glial tumor with more that 60% gemistocytes in all high-power fields. The term gemistocyte describes a large oval cell with abundant cytoplasm. The origin and nature of these cells remains unknown. They are not found in normal brain tissue, but accompany a variety of diseases of the central nervous system, including brain tumors. Gemistocytic astrocytomas are aggressive tumors, with mean survival times quotes between 26 – 36 months. The presence of a mutation in the p-53 gene has been reported to be significantly higher in gemistocytic astrocytomas as compared with other astrocytomas, (80% vs. 33%). The p-53 protein is a key regulator of the cell cycle, and its loss may induce cancer development. Although the poorer prognosis of patients with gemistocytic astrocytomas as compared with other types of astrocytomas may be linked to the increased incidence of p-53 gene mutations, the molecular basis of the observed effect of p-53 mutations on astrocytomas progression awaits further clarification.

**A CASE OF SEVERE ANEMIA IN A YOUNG WOMAN REQUIRING HOSPITALIZATION.** S.C. Mckean[1], E. Rittenburg[1]; [1]Brigham and Women's Hospital, Boston, MA *(Tracking ID #51024)*

LEARNING OBJECTIVES: 1. To perform a targeted H & P. 2. To arrive at the etiologic diagnosis quickly.
CASE INFORMATION: 25 yo F with fatique, DOE of several weeks.Meds: LoOvral, L-thyroxine, Proventil. PMH:Hashimoto's thyroiditis, asthma, bulimia,migraine H/A. FH: rheumatoid arthritis, Hashimoto's thyroiditis, and thyroid cancer (mother), Hashimoto's thyroiditis(brother), rheumatoid arthritis, autoimmune thrombocytopenia in grandmother, and SLE (aunt). Symptoms/general appearance lead to the provisional diagnosis of severe anemia. What should be the targeted H & P given the suspicion of severe anemia in this patient? From the H & P, what is the most likely cause of this patient's anemia? What should be the next step in the evaluation of this patient?



Smear.

DISCUSSION: First inquire about diet, vit, menses, pregnancy, blood loss. Inquire about medical compliance. Inquire about symptoms which might suggest an auto-immune disorder. WBC 3.49, Hg/Hct 5.1/14.3%, MCV 106.5, platelet 215,000, retic 2.0%. Use the CAGE questionnaire. BP 104/53 mmHg supine, 102/63 mmHg upright, pulse 99. No upright dizziness. No skin atrophy, koilonychia, malar, discoid rash, changes of small vessel vasculitis, icterus, ecchymoses, petechiae, purpura, palmar erythema, pyoderma gangrenosum, or alopecia. No angular stomatitis, glossitis, ulcerations. Normal cardiopulm exam. No hepatomegaly. Palpable spleen tip. Rectal swab: guaiac negative. No active synovitis, joint deformity, or rheumatoid nodules. Reduced DTRs, loss of vibration sense, + Romberg test with closed eyes. Review peripheral smear. B12 deficiency was diagnosed on the day of initial presentation. Pernicious anemia confirmed.

**AN UNUSUAL CAUSE OF ABDOMINAL PAIN IN A PATIENT WITH HISTORY OF SICKLE CELL DISEASE.** A.B. Olomu[1], M. Tarek[1], G. Ferenchick[1]; [1]Michigan State University, East Lansing, MI *(Tracking ID #50694)*

LEARNING OBJECTIVES: 1. Recognize the need for documentation of all previous diagnoses when you assume the care of a new patient. 2. Recognize the need to maintain standards of care for patients requiring multiple transfusions.
CASE INFORMATION: A 26-year-old African American male presented to the ED with one-week history of diffuse colicky abdominal pain, nausea, vomiting, and diarrhea. He was diagnosed with sickle-cell disease at age 3 years. He reports repeated bone pain crisis and multiple blood transfusions (2 – 4 times per month for many years). Last episode of trans-fusion was 10 days prior to presentation. He had history of cholecystectomy. His only medication was morphine sulphate, on which he was dependent. ROS revealed mild fever, multiple bone pains, and erectile dysfunction. Initial exam was notable only for generalized abdominal tenderness with guarding, no rebound. He had no organomegaly. Initial lab studies showed WBC 28.2, HB 12.5, Retic Count 0.6, Glucose 344, ALT 196, AST 127, ALP 157, Alb 3.9, Bil 1.9, Direct 0.8, HbA1c 8.4%, Total Fe 210, Ferritin >1500 , TIBC 274, Sat 77%, Amylase 16, Lipase 5, LDH 135, LH < 0.5, FSH < 0.4. CT of the abdomen revealed an absent spleen and gall bladder. There was evidence of hypopituitarism with siderotic changes on MRI. Repeated peripheral smear did not show any sickle cell. Hb electropheresis repeated on three different occasions showed normal HbA1 95% A2 2%. Viral screen was negative. On admission, abdominal pain remained persistent, and Hb dropped from 12.5 to < 8. GI endoscopy and small bowel follow-through were normal. Bone marrow (BM) showed a lymphocytic predominance with no blast. Ring sideroblasts were present. BM cytogenetic studies showed a single cell line with loss of one copy of chromosome 7, suggestive of myelodysplastic syndrome. We confirmed transfusional iron overload. Diarrhea resolved with pancreatic enzyme supplements.
DISCUSSION: This patient was managed as a case of sickle cell disease for over 23 years. However, an extensive search did not reveal the actual documentation in the patient's old records. Hemoglobin electrophoresis did not confirm the diagnosis. Repeated blood transfusions for anemia led to iron overload, which resulted in progressive organ dysfunction and increased morbidity. Use of Deferoxamine, an iron chelator, ameliorates hepatic, cerebral, and endocrine dysfunction. This case underscores the importance of ensuring the accuracy of any previous diagnosis when assuming the care of a new patient. Furthermore, the case highlights the need for the early use of iron chelators in any patient requiring long-term blood transfusions.

**TB OR NOT TB? THAT WAS THE QUESTION?** S. Rohr[1]; [1]Summa Health System, Akron, OH *(Tracking ID #50963)*

LEARNING OBJECTIVES: 1. To present a case of bronchioloalveolar adenocarcinoma masquerading as miliary tuberculosis. 2. To review the clinical presentation, roentgenogram manifestations, epidemiology, and pathology of brochioloalveolar adenocarcinoma.
CASE INFORMATION: A 39 year old female immigrant from Kosovo to the United States was found to have a positive tuberculin skin test, and an abnormal chest roentgenogram with bilateral nodular infiltrates and a cavitary lesion in the left upper lobe felt to be consistent with miliary tuberculosis. She admitted to a non-productive cough and was initially started on empiric therapy with a three-drug regimen through the local health department. She was referred to our Internal Medicine Clinic because of difficulty with patient management and compliance complicated by both cultural and linguistic barriers. Over the course of the next few months, she began to complain of increasing fatigue, weakness, and generalized pain. She developed a left lower extremity deep venous thrombosis that was attributed to a factor V leiden mutation and sedentary lifestyle. Despite coumadin therapy, she developed clot propagation. On an outpatient follow-up visit she complained of hoarseness. Sputum cultures had been unable to be obtained from the patient. She was referred for diagnostic bronchoscopy and was noted to have left vocal cord paralysis. Transbronchial biopsy revealed bronchioloalveolar adenocarcinoma.
DISCUSSION: There are 170,000 new cases of lung caner diagnosed annually. The incidence of adenocarcinoma, particularly bronchioloalveolar adenocarcinoma (BAC), has dramatically increased over the past few decades. BAC is defined as a subtype of adenocarcinoma with intraalveolar spread and growth along an intact interstitial framework. Risk factors that have been reported to be associated with BAC include damaged lung parenchyma, occupational exposure and viral exposure. There is still controversy over the risk associated with tobacco exposure. The most common presenting symptom is cough, although patients are usually asymptomatic. Chest roentgenogram manifestations vary from solitary nodules to diffuse disease as in this case. Because of the elusive nature of the disease, it is frequently diagnosed in later stages and prognosis is generally poor. BAC is an elusive disease that may present with nonspecific symptoms and roentgenogram findings. It is crucial to make a definitive diagnosis in any patient who presents with a persistently abnormal chest roentgenogram. Given the increased incidence of BAC over the past few decades and its predilection for young, nonsmoking females, further clinical studies are needed to identify clinical risk factors and transformation pathophysiology.

**SUPERFICIAL VENOUS THROMBOSIS: MORE THAN SKIN DEEP?** K. Sherman[1]; [1]University of California, San Francisco, San Francisco, CA *(Tracking ID #50864)*

LEARNING OBJECTIVES: (1) Review the risk factors for and presentation of superficial venous thrombosis (SVT); (2) Recognize the association between superficial and deep venous thrombosis (DVT); (3) Review the management options for SVT.
CASE INFORMATION: ML, a 53 year-old man with prior history of varicosities and vein stripping, presented with concern of "worsening thrombophlebitis." Four weeks prior, he had traveled across country by plane. Three weeks prior, he presented to the emergency

department with pain, erythema, and swelling of his left calf veins. At that time, an ultrasound was negative for DVT. He was diagnosed with SVT and instructed to elevate his leg and take aspirin. He presented to clinic 3 weeks later with an increase in erythema extending to his thigh associated with progressive pain and swelling. He denied dyspnea, chest pain, and personal or family history of hypercoagulability. His past history was significant for remote thyroid cancer, hypertension, and a right total hip replacement. Relevant medications included aspirin. His exam was notable only for tachycardia (pulse 100), trace edema of the left lower extremity, and 3 palpable superficial cords with overlying erythema located in the posterior calf, popliteal fossa, and anterior-medial thigh. Duplex ultrasonagraphy revealed a thrombus of the left greater saphenous vein with proximal extension into the deep venous system at the common femoral vein via the saphenofemoral junction (SFJ). The patient was admitted to the hospital and begun on enoxaparin for treatment of his DVT.
DISCUSSION: Superficial venous thrombosis, also known as superfical thrombophlebitis, presents most commonly with pain, tenderness, induration and/or erythema due to thrombosis of a superficial vein. Major risk factors for SVT include venous stasis, intravenous catheters, and inherited or acquired thrombophilic states. The risk of developing a DVT secondary to SVT is estimated at 5 – 11%. Up to 90% of these DVTs involve a proximal greater saphenous vein thrombosis that extends via the SFJ into the common femoral vein. While DVT screening in the setting of an SVT is indicated for patients with known hypercoagulable states or thrombi in the proximal greater saphenous vein, no standard screening guidelines exist for lower-risk patients. To evaluate for progression of SVT to DVT, repeat ultrasound should be obtained between 48 and 72 hours after initial presentation. Medical management of SVT without accompanying DVT includes compression, elevation, and anti-inflammatories. The role of anticoagulation, however, is unclear. Surgical management options include vein stripping and ligation of the SFJ. Surgical referral is recommended in cases of medical manangement failure and/or patient preference.

# HRSA ABSTRACTS (POSTER SESSION)

**INTEGRATION AN END-OF-LIFE CURRICULUM INTO THE INTERNAL MEDICINE CLERKSHIP.** L.J. Adams[1], B. Leslie[1], J.S. Kutner[1]; [1]University of Colorado Health Sciences Center, Denver, CO *(Tracking ID #47223)*

HRSA Grant Number: 1-D16-HP-00061
OBJECTIVES: To integrate an end-of-life (EOL) curriculum into the third year medicine clerkship via training with standardized patients and a hospice experience.
METHODS: This curriculum addressed a gap that was identified in our medical student curriculum: the lack of exposure to EOL issues and hospice care. On the first morning of the clerkship, students participate in a half-day workshop. The objectives of the workshop are to: increase student comfort when initiating EOL discussions and communicating bad news; teach skills to facilitate emotional and practical exploration by patients; elicit values, fears, and wishes for EOL care, including completion of advance directives; and increase skills for conducting a family conference. Trained faculty work with groups of six students for two hours. The students take turns interviewing a standardized patient couple about the woman's new diagnosis of Alzheimer's dementia. The standardized patients portray a couple that has suspected the worst, but are still shocked by the news of dementia. They have not thought much about formalizing their wishes for EOL care, but have considerable fears and values that guide this discussion. The students are instructed to pick specific goals for their interview; most groups address delivering bad news; facilitating emotional expression; eliciting fears, values, and wishes; discussing needs of the caregiver; and beginning to plan for the desired care. After each student practices with the couple, they do a self-assessment and then receive goal centered feedback from their peers, standardized patients, and faculty. In addition, students spend a full day at a community-based hospice, beginning with a two-hour introduction to hospice philosophy, financing, and care issues. The students are then paired with hospice staff and visit approximately four hospice patients in their home, long term care facility, or assisted living facility. The day ends with a debriefing in which the students share their experiences with each other, hospice staff, and the medical director. Common student concerns are the differences in patient and family wishes, EOL nutrition, and pain management.
RESULTS: Students report that the small group training with standardized patients is helpful but the full impact of this will be judged by their performance on the newly initiated end-of-third year clinical competency exam which includes an EOL case. On end of rotation surveys, students are able to identify common emotional reactions to bad news and can describe techniques to facilitate these discussions.
CONCLUSION: Based on student input, the workshop has been moved from the first morning of the clerkship to mid-first month. This allows the students to gain some clinical experience in internal medicine and not be distracted by the anxiety of starting a new clerkship . In addition, pain assessment/management, and discussion of "Do Not Resuscitate" orders have been added to the curriculum.

**INCORPORATING CROSS-CULTURAL AND ALTERNATIVE MEDICINE INTO AMBULATORY ROTATIONS.** M.D. Alschuler[1], J.B. Spear[1], L.F. Honor[1], M. Ring[1]; [1]Saint Joseph Hospital, Chicago, IL *(Tracking ID #51789)*

HRSA Grant Number: 5 D22HP00144 02
OBJECTIVES: To assure that every resident in our Internal Medicine Residency Training Program: 1. acquires knowledge regarding the health beliefs and practices of their patients who come from different ethnic backgrounds than their own, particularly Hispanic and African-American patients, and develops the skills needed to care for these patients and assure patient compliance (Community and Population-Based Medicine [CPBM]); 2. learns about the most commonly used alternative modalities, their benefits and possible dangers, proactively discuss alternative medical therapies with their patients, and works with them as they are treated by alternative therapists to monitor their progress, assess results and make decisions whether to continue these therapies (Complementary and Alternative Medicine [CAM]).
METHODS: Learning activities for these two Grant Objectives are distributed through the residents' yearly ambulatory rotations, noon reports and grand rounds. CPBM: At the beginning of the ambulatory block, the residents meet as a group with the CPBM Coordinators to discuss how cultural background and beliefs influence patients' interactions with health care providers and to receive their interview assignments and pertinent literature. PGY-1s interview patients from their own culture, PGY-2s, Hispanic patients and PGY-3s, African-American patients. Using a questionnaire that we developed, they each interview 5 – 6 patients. At the end of the rotation, they compare results and submit them to the research team who compile yearly reports. CAM: During their second year ambulatory rotation, residents attend weekly half-day sessions at an accredited college of Oriental Medicine, spend one day each week at the offices of general practitioners who have incorporated CAM into their practices, and meet weekly with the CAM Coordinator to discuss assigned readings. They each write a plan for collaborating with an alternative therapist in the treatment of one of their clinic patients.
RESULTS: Based on qualitative feedback, the rotations have had a positive effect on all of the residents who have experienced them (to date, 33 in CPBM and 13 in CAM). Didactic pre- and post-tests, as well as chart review protocols to determine documen-tation of patients' health beliefs and use of alternative therapies, are currently being developed. The college of Oriental Medicine is developing a clinic in our outpatient facility where residents can refer their patients and collaborate with their therapists.
CONCLUSION: It is possible for a residency training program to form the alliances necessary to provide experiences in cross-cultural and alternative medicine to its residents. Residents who have experienced these rotations tend to develop greater sensitivity and clinical awareness.

**VENUS AND MARS: COMMUNICATION BETWEEN INPATIENT AND OUTPATIENT PHYSICIANS DURING HOSPITAL ADMISSIONS.** K. Bibbins-Domingo[1], B. Williams[1], J. Leonardo[1], P. Solberg[1], T. May[1], A. Fernandez[1], D. Schillinger[1]; [1]University of California, San Francisco, San Francisco, CA *(Tracking ID #50810)*

HRSA Grant Number: 2 D28PE19179-13
OBJECTIVES: As patients admitted to the hospital are increasingly cared for by physicians other than those who care for them in the outpatient setting, communication between physicians is crucial. We undertook a study to quantitate the extent to which inpatient physicians (IP) and outpatient physicians (OP) communicate during a patient's hospitalization, to determine whether this communication results in the transmission of meaningful clinical information, and to evaluate both the IP and OP's experience of this interaction.
METHODS: Beginning October 15, 2001, we sampled all medical discharges from a large public teaching hospital one day a week and administered closed-ended telephone questionaires within 72 hours after discharge to IPs and OPs responsible for the care of these patients. We asked whether physician communication had occurred and at what points during the hospitalization, who initiated contact, knowledge about clinical details of the hospitalization, and assessment of the level of communication. The IPs were residents in medicine and family practice; the OPs were resident and attending physicians in medicine and family practice. Only admissions with identified primary OPs in the computerized medical record were eligible for consideration.
RESULTS: We completed inpatient and outpatient questionaires for 25 hospital discharges (45% of all eligible). In one third of these cases, neither the IP or OP reported that any communication took place at anytime during the hospitalization. When communication occurred, the OP was more likely than the IP to initiate contact (69%). In 75% of the discharges in which any communication occurred, OP's were aware of the discharge diagnosis, compared to 22% of the discharges in which no communication had occurred ($p = 0.01$). Among physicians who did communicate during a hospitalization, 25% of IPs found the level of communication to be slightly or very excessive. By contrast, 44% of OPs who had communicated with the IPs felt that more communication was warranted.
CONCLUSION: Despite its helpful role in transmitting information about discharge diagnoses, communication between inpatient and outpatient physicians often does not occur. When it does, it is usually initiated by the outpatient physician, and it is often viewed by the inpatient physician as burdensome. These results suggest that interventions to enhance coordination of care between inpatient and outpatient settings are needed. Interventions should address attitudes of inpatient physicians regarding physician communication and perceived barriers, particularly during residency training.

**GETTING EVIDENCE BASED MEDICINE TO THE BEDSIDE — FROM JOURNAL CLUB TO HANDHELD COMPUTER.** W.B. Brooks[1], A. Zbehlik[1], J. Lurie[1], J.M. Ross[1]; [1]Dartmouth Hitchcock Medical Center, Lebanon, NH *(Tracking ID #52346)*

HRSA Grant Number: 2 D28 PE 10201-04
OBJECTIVES: Training residents to effectively utilize medical evidence in real time clinical decision making is a difficult challenge requiring that: residents develop effective searching and critical appraisal skills; and medical information be accessible to the clinical encounter. To address these challenges in the Dartmouth Internal Medicine Residency Training program, our objectives are to: 1) create an educational process to link critical appraisal skill development with a clinically useful critically appraised topic data base; and 2) evaluate the effectiveness of two methods of disseminating this data base to residents (paper copy vs hand held computers (HHCs)).
METHODS: We have developed an evidence based Journal Club that stresses critical appraisal skills and highlights essential medical evidence relevant to making specific clinical decisions. The leaders of each Journal Club produce a summary of the medical evidence. This summary is entered into a data base that is subsequently disseminated using paper copy or HHCs.
To assess the efficacy of disseminating evidence summaries using paper copy compared to HHCs, we have designed a modified randomized control trial. Internal Medicine residents with their own HHCs were randomized to receive information from the data base via either paper (control group) or HHC (intervention group). Categorical residents without HHCs and

Primary Care residents (all have program purchased HHCs) were assigned to control and intervention groups respectively. During the 6 month intervention period (completion date 3/02), residents receive regular Journal Club generated medical evidence summaries either by paper or data base download to HHCs.
Outcomes include baseline and 6 month assessment of residents': evidence based knowledge; attitudes regarding data base usefulness; and self reported use of HHCs. The primary outcome measure is change in resident knowledge of evidence based topics covered in Journal Club and included in the data base during the intervention period.
RESULTS: Over 95% (n = 58) of eligible residents agreed to participate in the study. Twenty seven residents are in the intevention group and 31 in the control group. Over 82% currently utilize HHCs. HHC uses include medical reference, schedules and telephone contacts. Residents cite lack of HHC memory and few HHC reference programs as major limitations of the devices. Analysis of the primary outcome measure (change in knowledge) is pending completion of the 6 month knowledge test.
CONCLUSION: Our preliminary conclusions are: 1. residents have embraced the use of HHCs for medical reference information; and 2. distilled medical evidence can be disseminated easily using paper, a desk top or HHC data base. We anticipate being able to assess the impact of two methods of disseminating medical evidence on resident knowledge as well as the perceived utility of HHCs in making medical decisions.

**THE PRIMARY CARE PROJECT: A REQUIRED COMMUNITY-BASED RESEARCH EXPERIENCE FOR PRIMARY CARE RESIDENTS.** D.R. Buchanan[1], S.B. Glick[1]; [1]Cook County Hospital, Chicago, IL *(Tracking ID #51233)*

HRSA Grant Number: 1-D22-HP-00022-01
OBJECTIVES: One of the goals of our primary care internal medicine training program is to empower residents to identify, investigate and solve public health problems. Caring for patients in our large public hospital and community-based continuity clinics provided residents ample opportunity to recognize public health problems; however, they did not have the skills to study or correct them. In September 2000, we implemented a required community-based research project (the primary care project) to teach residents to characterize and address community-based public health issues.
METHODS: Project mentors were identified and recruited at our public hospital, university hospital and affiliated community health centers. Dinner meetings were held with the residents and prospective mentors in September 2000 and October 2001. Project mentors shared their areas of interest and expertise with the residents. The Project Director (DRB) then met individually with each resident to discuss possible projects and suggest appropriate mentors. Residents were allotted ½-day per week during their primary care block rotations (a total of 16 weeks annually) to work on their projects. Residents who desired additional protected time selected month-long research electives. Projects included: Predictors of Teen Pregnancy in Public School-Based Clinics, Healthy Eating on a Budget: A Cookbook for People with Diabetes and Their Families, and The Prevalence of Hepatitis C in the Homeless.
RESULTS: In December 2001, we surveyed the second and third year primary care residents about their experience with the primary care project. 90% of the residents (9/10) completed the survey. 66.7% of the residents (6/9) felt participating in the primary care project convinced them they were capable of performing research; 44.4% (4/9) felt the project showed them they enjoyed research. 44.4% felt their primary care project had helped them/would help them secure a job or fellowship position. 66.7% anticipated they would publish or present their primary care project prior to graduation from the training program; 11.1% had already published or presented their project. 77.7% of the residents wished they'd had a formal course in research methodology before beginning the primary care project; 11.1% felt this was unnecessary. 66.7% felt the primary care project should remain a mandatory experience.
CONCLUSION: A required community-based research project has two important short-term benefits: 1) residents discover they are capable of conducting research and 2) residents perceive the project improves their employment prospects. Even with a small amount of dedicated time for research, most residents feel able to publish or present their work during residency training. Adding a course in research methodology might further increase residents' facility and satisfaction with public health research.

**RESIDENT TRAINING IN END-OF-LIFE CARE.** M. Conti[1], G. Iacono[1], Z.H. Piotrowski[1]; [1]West Suburban Hospital Medical Center, Oak Park, IL *(Tracking ID #50497)*

HRSA Grant Number: 5 D28 PE 10198
OBJECTIVES: 1. On-line Learning Initiative. 2. Hospice Care. 3. Didactic Experiences.
METHODS: 1. Residents were provided the web address for the Medical College of Wisconsin's site for End-of Life care. (www.eperc.mcw.edu) Dr. Conti wrote weekly questions for the residents based on one or more "Fast Facts". The following week, residents were given answers to the questions, together with the appropriate citation from "Fast Facts". Residents who correctly answered questions were given "points" in EOL care. They were required to accumulate a certain number of points each training year. 2. Second and Third year residents were assigned two hospice patients per year to follow. They were encouraged to select their own hospice patients from among those patients they had already encountered. If they did not select their own patients, they were assigned two patients. Residents were required to attend at least one hospice team meeting per patient. Structured written learning guides were provided. 3. Existing key Internal Medicine faculty (Dr. Conti and Dr. Iacono)taught residents during existing times in the Internal Medicine Curriculum.
RESULTS: 1. Residents became skilled at locating and retrieving clinically relevant evidence-based information in EOL care in a short period of time. 2. Residents became more comfortable interacting with the Hospice Team and providing care in dying patients' homes. 3. Residents gained familiarity in aspects of EOL care not covered elsewhere in the IM Curriculum.
CONCLUSION: 1. 3 months after the project was begun, 60% of all residents frequently responded to e-mail questions, with 95% of all responses correct. 2. By 3 months after residents were informed of the hospice requirement, 20% of the residents had followed at least 1 patient. 3. In-training exams as of the summer of 2001 show that 3rd year residents have an improved knowledge base in EOL care compared to 1st and 2nd year residents.

**ADVANCE ORGANIZER USE TO IMPROVE RESIDENT LEARNING IN EBM JOURNAL CLUB.** S. Yen[1], A. Dean[1], Z.H. Piotrowski[2]; [1]West Suburban Hospital Medical Center, Oak Park, IL; [2]West Suburan Hospital Medical Center, Oak Park, IL *(Tracking ID #50501)*

HRSA Grant Number: 5 D28 PE 10198
OBJECTIVES: Often the problem with the standard approach to journal club is that residents are bogged down in statistical analysis and lose sight of the underlying goal — to determine if we should make a substantive change in our medical practice. To counter this problem with resident learning during journal club at our institution, we use the learning theory concept of Advance Organizers. Advance Organizers establish ideational scaffolding which links what is to be learned with what the resident already knows. Learning is enhanced with an embedded structure or organization. By using Advance Organizers we hope to enhance resident awareness of their current practice, and thus enable a more directed impact on their learning during journal club.
METHODS: At the beginning of journal club, the preceptor will poll the residents on their current practice as related to the chosen article. After the article has been analyzed using the standard format of the "User's Guides to the Medical Literature", the residents are again polled to determine if their practice has been reinforced or changed.
RESULTS: Two examples that demonstrate the impact of this method. 1. We examined the article "Hormone Replacement Therapy and Prevention of Nonvertebral Fractures: A Meta-analysis of Randomized Trials" JAMA.2001;285:2891. A priori polled residents assumed that hormone replacement would prevent fracture in 5% – 50% of women, so were mostly recommending hormone use in their practice. After the article demonstrated numbers showing only about 3% of women benefit, and after each resident's own interpretation of the strength of the evidence, there was a change in the assumption of benefit, and agreement for more educated discussion with patients. 2. We examined "Risk of Cardiovascular Events Associated With Selective COX-2 Inhibitors" JAMA 2001;286:954. Before this meeting most residents were not aware or uncertain of the potential cardiovascular risk, and the majority of the residents were liberally using a COX-2 inhibitor for arthritis treatment, especially in the elderly. After the analysis, 92% of the residents (12/13) were rethinking the popular usage of these analgesics.
CONCLUSION: Advanced organizers can make a substantial impact on resident learning in journal club. Future projects could include formalizing the concept with each journal club, and using questionnaires to determine long term impact.

**"IF YOU TEACH IT WILL THEY COME? FACULTY DEVELOPMENT FOR COMMUNITY BASED TEACHERS IN SAN FRANCISCO."** M.D. Feldman[1], A.B. Bindman[1]; [1]University of California, San Francisco, San Francisco, CA *(Tracking ID #51318)*

HRSA Grant Number: 444919 24871-03
OBJECTIVES: As the UCSF School of Medicine embarks on an innovative new curriculum that emphasizes, in part, more longitudinal clinical experiences throughout the 4 years, there is a growing need for more and better trained community based preceptors, particularly in underserved areas. These community based teachers require faculty development opportunities that are targeted to their specific needs and compatible with the multiple demands on their time.
METHODS: To address this need, we assembled a UCSF faculty development team composed of both University and community based faculty/teachers. Team members are graduates of the UCSF/DGIM faculty development program and participated in the HRSA sponsored GIM faculty development program ("GIMGEL") where they received training in advanced teaching skills. The team met regularly to design and implement teaching skills workshops for community based preceptors based in the 10 public primary care clinics in underserved areas of San Francisco. The workshops were designed to be short (60 minutes), interactive, and were held on-site at the clinic. Needs assessments indicated a strong interest among primary care clinic faculty for improving teaching skills, especially time-efficient teaching.
RESULTS: We have held 3 workshops on "time efficient teaching" over the past year with a total of 16 primary care clinic preceptors. Community based clinic directors from these sites had participated in the year-long UCSF/DGIM faculty development program and helped facilitate the workshops. Post-workshop evaluations revealed an increase in preceptor confidence to "teach efficiently" in their practice setting after the workshop. (55% of preceptors were "confident" or "very confident" prior to the workshop; this increased to 78% after the workshop.) Qualitative comments revealed that these community based preceptors are passionate about teaching and appreciate the opportunity to learn and refine their teaching skills.
CONCLUSION: Short workshops held on-site at the clinic can be an efficient way to learn and practice new teaching skills for community based preceptors. The community and University based graduates of our longitudinal faculty development program learn new teaching skills that make them ideal teachers for these preceptors. By involving the community primary care clinic directors and other leaders in our faculty development program, we have established strong linkages with many of these clinics and have begun to change the 'culture of teaching' at these sites.

**UNIVERSITY-HEALTH PLAN PARTNERSHIPS: USING HEDIS MEASURES AND HEALTH PLAN STAFF TO MENTOR MEDICAL STUDENTS IN IMPROVING HEALTHCARE OUTCOMES.** B.E. Gould[1], C. Huntington[1], J. Rosen[2], K. Harrington[1], E.C. Seiler[3], C.B. Carlson[4], R. Scalettar[3], G. Grundy[5], K. Cohen[4], E. Smith[6], F. Rahman[7], R. Blumenfeld[8]; [1]University of Connecticut, Farmington, CT; [2]ProHealth Physicians, Inc., Farmington, CT; [3]Anthem BC/BS, North Haven, CT; [4]Aetna, Hartford, CT; [5]Aetna US Healthcare, Hartford, CT; [6]Community Health Network of CT, Inc., Meriden, CT; [7]CIGNA, Jersey City, NJ; [8]Connecticare, Farmington, CT *(Tracking ID #52173)*

HRSA Grant Number: contract #240-97-0038
OBJECTIVES: The UCSOM developed a quality improvement curriculum as part of the HRSA-funded UME-21 project. Although indicators of care were improved, the process of chart review by students was cumbersome and of limited educational value. This abstract describes the next phase in the evolution of the curriculum: the use of Managed Care Organization (MCO) Health plan Employer Data Information Set (HEDIS) measures as the pre- and post-intervention outcome measures.
METHODS: Eighty second year students performed a CQI study at their community-based primary care continuity clinics, which they attend one-half day per week. Five MCOs shared

practice-specific HEDIS measures with the University. Data was merged into a single report on each practice. Students with their preceptors identified opportunities for improvement (OFI) and chose interventions from a resource manual developed with the MCOs. A report with a control group of non-participating practices will be developed post-intervention.
RESULTS: Eighty students participated. MCOs provided HEDIS data, staff to assist in report generation and to serve as mentors to students. MCO quality managers worked with students to identify OFIs and design interventions to improve outcomes. Student satisfaction with the project improved. Due to sampling methods used to generate HEDIS measures, data was not available for all sites (especially for pediatrics). Effects of the project on HEDIS indicators will not be known until after the intervention period is completed.
CONCLUSION: MCO HEDIS data may represent a better and more acceptable source of performance data than student-generated chart audit results. However, despite participation in health plans, some practices may not be included in data sets due to sampling methods used to generate HEDIS. Reanalysis of claims data bases may be required to rectify this problem. MCOs make enthusiastic and committed partners in efforts to educate students about CQI and improve the quality of health care delivered.

**DO WORKSHOPS AS PART OF A NEW PRIMARY CARE INTERNAL MEDICINE CURRICULUM INCREASE MEDICAL KNOWLEDGE.** S.A. Haist[1], J.F. Wilson[1], C.H. Griffith[1]; [1]University of Kentucky, Lexington, KY *(Tracking ID #52223)*

HRSA Grant Number: I D16 HP 00038-01
OBJECTIVES: Assess gain in domain specific knowledge of students who received domain specific workshops compared to students who did not receive the workshops as part of a required four-week ambulatory internal medicine clerkship.
METHODS: Seven workshops were developed to address many of the Healthy Peoples Objectives 2010. Three of the following six workshops were presented each rotation: Domestic Violence (DV), Depression (DP), Smoking Cessation (SC), Ethanol Abuse (ETOH), Chronic Pain (CP) and Sexual History/HIV Risk Factor Reduction Counseling (SHHIV). The workshops are 4 hours, occur during the first 3 days of each 4-week rotation, and include 2 hours of interacting with four different standardized patient (SP) cases. Discussion of the particular topic follows the SP cases. All students are assigned readings from a Primary Care textbook on each of the domains. A student reference is provided after each workshop to enhance learning. At the end of each clerkship, students take a nine-station SP examination and a 139-question written examination (DV, 3:DP, 9 (also 6 other questions are psychiatric related), SC, 10; ETOH 9; CP, 14; and SHHIV, 12 questions). Simple means and standard deviations were calculated. General linear model was used to compare performance of students who had a specific workshop to students who did not have the workshop. Non-workshop question performance was used to compare different rotations to assure rotation groups did not differ by knowledge.
RESULTS: The preliminary results include all 35 students from the first 5 rotations. Students participating in two workshops, DV and SHHIV, scored better on the written examination on the domain specific questions than students not participating and there was a trend for better performance for students participating in the DP workshop: DV means 92.3 vs 79.7 ($F = 6.0$, $p = .02$), effect size 0.8 SD; SHHIV 78.0 vs 69.9 ($F = 10.4$, $p = .003$) effect size 1.2 SD and DP 91.1 vs 85.2 ($F = 3.37$, $p = .08$), effect size 0.6 SD. Means for the non-workshop questions for the 5 rotations was 55.5, 58.3, 60.1, 57.3 and 60.1 ($F = 0.52$, $p = .72$).
CONCLUSION: Four-hour workshops on DV, SHHIV and DP utilizing SPs increased students' knowledge on written questions specific to the topic compared to peers not receiving the workshop and only having assigned readings on the topic. Further research will include determining whether clinical skills also improved with the workshops.

**INTEGRATING CRITICAL APPRAISAL SKILLS INTO AMBULATORY MORNING REPORT.** D.A. Halle[1], A.H. Jackson[1]; [1]Boston University Medical Center, Boston, MA *(Tracking ID #52015)*

HRSA Grant Number: 93.884A
OBJECTIVES: Two of the biggest challenges of teaching critical appraisal skills to residents are the limitations of time and faculty resources. The objectives of this project are to: 1) Improve residents' proficiency in the evidence based medicine (EBM) process. 2) Expand the skills learned during didactic EBM Primary Care seminars with individual learner-centered critical appraisal exercises. 3) Integrate the expanded EBM curriculum into existing residency training.
METHODS: A needs assessment was conducted via a survey of all Primary Care residents in our residency program. Residents noted that the implementation of the EBM Primary Care seminars was very helpful, but requested additional "hands-on" experience. A new session was integrated into Ambulatory Morning Report (AMR). AMR is attended by residents and students on ambulatory blocks and electives, with a general internist as the discussion moderator. The Critical Appraisal session now occurs weekly. The chief resident is responsible for scheduling a junior or senior resident to present a case, generating a focused clinical question, and conducting an efficient search for a relevant article that answers that question. Residents are assigned to meet with a selected faculty preceptor, an expert in critical appraisal, prior to AMR. The preceptor provides guidance, using the JAMA Users' Guides to the Medical Literature format, and attends AMR. The moderator leads the group in active discussion of the clinical case. The resident presents a summary of the critical appraisal process of the selected article. The preceptor reviews and underscores the key EBM principles in the article selected. Direct feedback is provided to the resident throughout, beginning during preparation time with the preceptor and concluding with completion of the resident's "procedure card" by both faculty members at the end of the session. All residents are expected to complete this exercise yearly.
RESULTS: This new initiative has been easily integrated into an existing AMR structure. Preceptor faculty's time commitment is limited to 2 hours/session and a broader number of faculty have been recruited to participate. Residents and faculty are enthusiastic about this new addition to the curriculum, and data is being collected to assess the impact of this new conference format. Residents enjoy the structured format and the one-on-one guidance received. The procedure card has been a useful tool for program directors to ensure that all residents participate in this educational process.
CONCLUSION: Teaching EBM is more effective if the process is driven by the resident learner. Broad faculty participation is possible with this model due to a relatively small time commitment. This model effectively develops residents' critical appraisal skills, at the same time creating an ambulatory curriculum that directly responds to residents' learning needs.

**DEVELOPING MEDICAL EDUCATORS: AN INTERDEPARTMENTAL FACULTY DEVELOPMENT FELLOWSHIP FOR JUNIOR FACULTY.** D.S. Hatem[1], D. Keller[1], S. Devaney-O'Neil[1]; [1]University of Massachusetts Medical School, Worcester, MA *(Tracking ID #52398)*

HRSA Grant Number: PE5D08PE50091-02a
OBJECTIVES: We developed a part time, 1 year, 3 department, financially supported Faculty Development Fellowship to develop the teaching and leadership skills of selected junior faculty from the Departments of Medicine, Family Medicine, and Pediatrics at the University of Massachusetts Medical School (UMMS). HRSA funds, supplemented by departmental financial support for teaching provides a 0.2 Full Time Equivalent support for each Fellow.
METHODS: Fellows meet for weekly 3-hour seminars. Major areas of seminar concentration include Teaching and Learning, Reflection and Professional Development, Culture and Advocacy, Educational Scholarship, and Leadership. These seminars are taught by faculty in the HRSA funded Community Faculty Development Center (CFDC). Fellows teach weekly in the UMMS Physician, Patient, and Society Course, which teaches medical interviewing, clinical problem solving, medical Humanities, and personal and professional development as a physician. They also teach in the year long CFDC-sponsored Teaching of Tomorrow (TOT) program which develops the teaching skills of community-based practitioners from the 3 Primary Care disciplines.
RESULTS: One cohort of 6 Fellows has completed the fellowship. All 6 fellows planned and carried out educational projects. Seminar sessions were evaluated hightly and self-assessed teaching, leadership, and educational project skills improved. Further analysis of educational project presentation at regional and national meetings, publications, career advancement, and Fellowship benefits will be assessed through follow-up questionnaires and focus groups.
CONCLUSION: A financially supported, interdepartmental, part time Faculty Development Fellowship for Junior faculty is feasible. Fellows rated the sessions highly and perceived skills development in all areas of Fellowship seminar concentration. Long-term outcomes are being tracked to assess the lasting effect of this Fellowship program on the career development of medical educators at UMASS.

**TRAINING MEDICAL PRECEPTORS IN NEW PRACTICE AND TEACHING SKILLS.** K.M. Hla[1], P.K. Kokotailo[2], C.L. Gjerde[2], C.A. Olson[2]; [1]University of Wisconsin-Madison, Madison, WI; [2]University of Wisconsin, Madison, WI *(Tracking ID #51249)*

HRSA Grant Number: 5 D08 HP 50097 03
OBJECTIVES: Medical preceptors are expected to be proficient in teaching and using managed care principles, evidence-based medicine and medical informatics with their student and resident trainees, although many have never received formal training in these areas. Many of the technical skills and content areas are difficult to learn through self-study and require demonstrations, active learning and hand-holding. The overall objective was to help preceptors learn the materials and skills for teaching principles of primary care medicine as practiced in the emerging, complex health care environment. We also needed to help teachers from biasing students against these new principles and practice styles. Our pedagogical challenge was to involve these adult volunteer teachers in active learning activities so they could start using the skills when they returned home from workshops.
METHODS: We developed a year-long series of five weekend workshops beginning in 1999. Enrollment was capped at 20 to allow active participation by learners. A HRSA grant provided partial salary support for the faculty and housing, travel, and meal expenses, but no stipends for the participants. A core group of faculty provided 2 – 4 hour sessions on topics including evidence- based medicine, physician leadership, advocacy, doctor – patient communication, quality improve-ment, technology tools (taught in computer labs), and teaching skills. Each participant identified a year-long project and presented findings at graduation. Detailed program evaluation was used.
RESULTS: Conference evaluations were uniformly high from the 53 graduates (from 1999 to 2001). Project topics have included: studies of patient access to care including telephone triage systems in clinics; development of EBM teaching programs, a breast-feeding OSCE, practice guidelines, and care management protocols for diabetes; and, evaluation of the impact of a rural training track, adherence to practice guidelines, and utility of chest films in managing acute respiratory illnesses. There was wide variability in the amount of project work completed and project quality.
CONCLUSION: Our three years of experience have taught us several things. Adult learners do not tolerate extensive lectures; presenters need to use active learning methods allowing participants time to practice the skills learned in class. CME credit is important to private practitioners. Social events are important for the group. Participants need extensive faculty support on their projects; while projects demand time, participants report that the project helps them to integrate knowledge and skills learned in the program.

**THREE CURRICULAR INITIATIVES IN MEDICAL INFORMATICS.** A. Zafar[1], M. Overhage[1], M. Srinivasan[1], C. Mcdonald[1], K. Kroenke[1]; [1]Indiana University, Indianapolis, IN *(Tracking ID #52190)*

HRSA Grant Number: 46-885-64
OBJECTIVES: Medical Informatics is becoming increasingly commonplace in the delivery of health care and in clinical teaching and research. Our objectives were to (1) Develop a core lecture series in medical informatics for post-graduate informatics fellows, (2) Develop a curriculum in Evidence Based Medicine (EBM) for 1st year and 4th year medical students and (3) Develop a core set of web-based learning modules for busy clinical subspecialty fellows.

METHODS: (1) We contacted all identifiable medical informatics programs across the country and abroad and requested course catalogs, course descriptions and lists of topics that were covered. We abstracted the course descriptions and topic lists into topic categories and identified on-campus and off-campus expertise in the various topic areas. (2) For the 1st year students, Dr. Srinivasan performed an observational study looking at the introduction of a 1-month EBM course to pre-clinical students. For the 4th year students, we decided to cover topics in meta-analysis and review the basic theory about articles on therapy and diagnosis. A simulated clinical encounter at the start of the session provides a hands-on exercise in literature searching, generating real insight into the usefulness of references such as meta-analyses, randomized controlled trials, guidelines and classical textbooks. (3) Finally, we developed a web-based module series for clinical fellows on topics such as literature searching, molecular biology, clinical Humanities, human subjects research, OSHA regulations, risk management, bio-statistics, evidence based medicine and end-of-life care. Pre and Post-test questions have been developed to test the effectiveness of the web based curriculum. A web-based approach was chosen because of the limited time clinical fellows have to spend in a lecture setting.
RESULTS: (1) We developed 50 lectures from the identified topic categories including lectures on database design, interface technologies, clinical computing standards, concept representation, decision support, computer programming, data analysis, imaging, bio-informatics, information Humanities and security. We had guest lecturers from outside our institution talk about natural language processing, alternative data capture methodologies, bio-informatics and image processing. (2) Dr. Srinivasan tested the curriculum on 139 1st year students and found that they not only performed at the same level as residents but felt that the course material was relevant at their level. We also found that the 4th year students felt that the short course was good review and added new knowledge to their skill set. (3) 42 clinical fellows in 9 subspecialties have beta-tested the web based curriculum and have provided valuable feedback in terms of clarifying and organizing the content, interface design issues and the "fairness" of test questions. Initial data suggests a 40% improvement of post-test scores as compared to pre-test scores in 30% of the fellows who have completed 4 of the 9 modules. We will be demonstrating elements of the web-based curriculum at the poster session.
CONCLUSION: We have developed a comprehensive curriculum in medical informatics that meets the needs of a broad range of learner profiles. This is designed to prepare graduates for the information rich practice environments of today. The initial trial of this curriculum has been well received. We plan to eventually develop self-contained, CD-ROM version of the curriculum for dissemination to individuals outside our own institution.

**CREATING A PRIMARY CARE RESEARCH UNIT WITHIN A CLINICAL DEPARTMENT.** B. Littenberg[1], P. Turner[1], D. Walrath[1]; [1]University of Vermont, Burlington, VT *(Tracking ID #51838)*

HRSA Grant Number: 1D12HP00050-01
OBJECTIVES: To develop its role in health services research, the University of Vermont created a new research-oriented academic General Internal Medicine unit within a predominantly clinical Primary Care Internal Medicine unit. We seek to describe its development.
METHODS: Initial funding was procured through internal endowment and federal (HRSA) grant support. The Research Director, a physician with extensive health services research experience, was recruited in April of 1999. Office space was provided by the hospital which hoped that the unit would provide support for certain management problems such as quality improvement and technology assessment. Three clinical internists were converted to research faculty within the unit after specific research fellowships locally or at other institutions. They are provided 80% protected time for research. Two PhD social scientists, an anthropologist and a psychologist/statistician, were recruited. All faculty are provided start-up research funds, administrative support and close mentoring. A research fellowship includes physicians as well as doctoral level professionals in other fields such as pharmacy. To provide a supportive environment, we employed weekly research seminars, team/project meetings, writers' workshops, and a book club. The unit also serves as the training and faculty development resource for other units through research consultation and graduate-level research courses to clinicians and fellows.
RESULTS: After two years has generated $1,049,869 in external grants. Seven abstracts, including two prize winners, have been presented at national conferences and 14 papers have been published in refereed journals. An emerging consulting role is developing between the unit and the College of Medicine as well as throughout the state with managed care providers, quality improvement organizations, and the Vermont Department of Health. The unit shares sponsorship of the new Program for Research in Medical Outcomes (PRIMO), one of seven featured research programs chartered by the Dean of Medicine.
CONCLUSION: Development of a successful academic unit requires financial, logistic and intellectual systems that provide a community of scholars with a supportive environment. Our approach and experience offers a model for institutions wishing to advance primary care research within existing clinical departments.

**A QUALITATIVE STUDY OF PATIENTS' PERCEPTIONS OF RECURRENT ADMISSIONS IN A PUBLIC HOSPITAL.** A. Liu[1], E. Tan[1], K. Rising[1], M. Kushel[1], A. Fernandez[1]; [1]University of California, San Francisco, San Francisco, CA *(Tracking ID #51404)*

HRSA Grant Number: 2 D28PE19179-13
OBJECTIVES: Patients who are frequently admitted to public hospitals often have multiple medical and social comorbidities including addiction and homelessness. Little is known about these patients' perceptions of the factors contributing to their recurrent hospitalizations. As part of a HRSA funded resident seminar entitled Populations and Quality Improvement, we performed a qualitative study of patients with recurrent admissions to an urban public hospital, aiming to achieve a more richly textured understanding of these patient's perceptions of their hospitalizations.
METHODS: Using a hospital database, we identified male patients admitted between October and December 2001 with 3 or more hospitalizations to a medical ward in the last year. Eight English-speaking men with one or more chronic medical diseases were recruited. Chart review provided demographic and medical information. The principal investigator performed in-depth interviews of consenting patients during their hospitalization using a semi-structured interview and made field notes on site to capture non-verbal data. All interviews were audiotaped and transcribed. We reviewed interview transcripts periodically and revised the interview guide to reflect new ideas generated from initial interviews. After data collection was complete, thematic analysis was performed.
RESULTS: Six participants were African-American and two were Caucasian. Mean age was 46. Five were homeless, seven had primary care doctors, five reported significant substance abuse problems and six reported a mental health diagnosis. Patients identified several reasons for recurrent hospitalization (in decreasing order of frequency): 1) harsh living conditions of being homeless (exposure to weather, medications being "stolen" on street) 2) substance use as detrimental to health 3) premature discharge (attributed by patients to either physicians or hospital administrators) and 4) lack of physician assistance in obtaining social security income. Despite viewing the hospital as "boring" and "socially isolating," patients described the hospital as a "safe and protected" environment. Participants were uniformly content with their overall medical care and felt welcomed at the public hospital. Patients also felt that their physicians "listened to them." All homeless participants identified housing and food as their most pressing needs to improve health.
CONCLUSION: Patients identified several factors that contribute to recurrent admissions including drug use, homelessness, and poverty. While generally content with their medical care, they also believed that premature discharge and lack of physician advocacy for social service programs contributed to frequent hospitalizations.

**LINKING FELLOWSHIP TRAINING TO THE MIDDLE SCHOOL CLASSROOM.** L.Z. Nieman[1], S. Ali[1]; [1]University of Texas Health Science Center at Houston, Houston, TX *(Tracking ID #52273)*

HRSA Grant Number: 6 D14HP00045 02
OBJECTIVES: Effective preventive health may require community linkages beyond those established in the physician's office; however, few training programs educate trainees in the latest techniques of making community linkages. Objectives are: 1. To use videoconferencing in the delivery of interactive health care education to ethnically diverse middle school children. 2. To increase the health awareness of middle school children.
METHODS: As part of a Faculty Development in Primary Care HRSA grant, all Primary Care fellows are asked to select a preventive topic from a list of desirable topics for presentation to students at an ethnically diverse Houston Middle School. To help them prepare, all fellows are given a videotape from previous sessions presented by University of Texas Medical School faculty. After reviewing the topic literature, fellows prepare a brief overview and questions pertaining to the topic. During a subsequent session at the School of Public Health videoconferencing studio, fellows talk directly to students in the classroom, asking them questions about the topic, ascertaining their level of knowledge, and providing them with additional information when the discussion indicates that they lack knowledge.
RESULTS: Six fellows interacted with approximately 180 students on topics such as hygiene and nutrition, birth and heredity, death and dying, drug and alcohol abuse. Early in their teaching sessions, some of the fellows had difficulty in feeling comfortable with "distant" learners. Students responded to questions that were asked, based upon their personal experiences and their research on the internet. Evaluations of the fellows were positive (>4.00 on a 5.00 scale), and two fellows, who received special praise, were asked to repeat topics. The children and their teachers also enthusiastically expressed their satisfaction with the sessions to the coordinator. As a result of this positive first step, fellows were asked to videoconference to a grade school in the Texas–Mexico border area. The first sessions were held in January 2001.
CONCLUSION: Primary care fellows are a good resource for providing videoconferenced sessions in school based settings. Special attention should be given to preparing fellows to interact with students who are not in the same room with them. This requires repeated teaching sessions. Fellows need to realize beforehand that middle school children may have a surprising knowledge of medical information from the internet.

**SERVICE-LEARNING PROJECTS FOR MEDICAL STUDENTS AND INTERNAL MEDICINE RESIDENTS: THE RESIDENT'S ROLE.** C. Pierre[1], K. Lasser[1], D. Bor[1], R. Pels[1], V. Chomitz[1]; [1]Cambridge Health Alliance — Harvard Medical School, Cambridge, MA *(Tracking ID #51715)*

HRSA Grant Number: 5 D22 HP 00079-02
OBJECTIVES: 1. To link academic medical centers with surrounding communities. 2. To educate students and residents about community health. 3. To provide residents with teaching and precepting experience.
METHODS: We engaged with community health organizations to design focused projects that address the community's health needs. We have currently assembled 4 teams consisting of several first-year medical students, a primary care internal medicine resident, and a faculty preceptor (internist, epidemiologist, nurse, or social worker). Residents provided clinical insights, supervised pre-clinical medical students and modeled respectful and empathic behavior. At a monthly seminar series, the teams and an interdisciplinary faculty with expertise in community health met to review "works in progress." We report in detail the results of one project.
RESULTS: We assigned a third year medical resident (CP) to a team of 12 medical students. The hospital and surrounding community had set improving diabetes care as a health priority. The team sought to elicit qualitative data from patients about their diabetes care and how it could be improved. The resident taught students about diabetes, and guided them through the process of eliciting informed consent, making house calls and collecting and analyzing data. The findings were presented to clinical leaders who used the data to improve patient education and access to medications.
CONCLUSION: Service-learning projects designed by medical students and residents working in partnership with community organizations have the potential to influence the health of underserved communities and the missions of academic health centers. Through their involvement in community projects, residents can acquire a better understanding of community determinants of health, and can gain skills necessary to become better teachers, researchers and primary care physicians.

**DEVELOPING A RESEARCH INFRASTRUCTURE IN GENERAL INTERNAL MEDICINE.**
J.B. Schorling[1], N.B. May[1]; [1]University of Virginia, Charlottesville, VA *(Tracking ID #52199)*

HRSA Grant Number: 1D12HP00040-01
OBJECTIVES: The Division of General Medicine and Geriatrics received HRSA funding in October, 2000 to develop our research infrastructure. The project objectives are to 1) develop the capacity to obtain and manage extramural support across the Division; 2) develop a sustained research program in the care of underserved populations; 3) develop a sustained research program in geriatrics; and 4) develop a sustained research program in palliative care.
METHODS: The core of the research infrastructure development has been the establishment of a Research Resource Center (RRC). A key feature of the RRC has been to provide assistance in grants management, proposal writing and editing, budgeting, preliminary review, and project coordination. The RRC also publishes a quarterly online newsletter, conducts literature reviews, monitors funding sources, and maintains a grant writing sharefile. To strengthen research training, the RRC is working to develop a curriculum in research methods relevant to primary care; expand the fellowship programs in General Medicine and Geriatrics; establish a research seminar series; create a mentoring program for junior faculty; and expand opportunities for medical student and resident research. To develop sustainable research programs in the three areas (underserved populations, geriatrics, palliative care), we have recruited and hired additional faculty, developed a Division research agenda, supported pilot projects leading to extramural funding applications, and established collaborative relationships with other divisions, departments, and schools.
RESULTS: In addition to undertaking the activities described above, we have hired a full-time research director, a part-time research assistant, and two clinician-research faculty. In the past 15 months, we have held 28 division research conferences, awarded $32,000 to fund five pilot research projects, and submitted nine proposals for extramural funding. Of those nine proposals, three grants have been awarded to the Division for a total of $424,429.
CONCLUSION: In addition to HRSA support, we have identified several additional factors which seem critical to the successful development of a research infrastructure. These factors include tangible organizational commitment; strong leadership; the availability of funds for pilot research studies; collegiality among faculty; improved communication and frequent meeting times; and the availability of skilled researchers who can both attract external funding and share their expertise with young faculty.

**DEVELOPING A COST EFFECTIVE DIABETES DISEASE MANAGEMENT SYSTEM FOR UNDER-SERVED COMMUNITIES.**
B. Slater[1], H. Burke[1], M. Mintz[1]; [1]George Washington University, Washington, DC *(Tracking ID #52251)*

HRSA Grant Number: CCLS90018A
OBJECTIVES: We want to deliver high quality cost effective expert system information at the point of care that will improve the quality of outpatient care in under-served areas without extensive electronic infrastructure.
METHODS: We selected a proven platform, the Pocket PC, and developed an expert system to manage diabetes that can operate independent of traditional personal computers. Running at 206Mhz with up to 64MB of memory, the Pocket PC can support the sophisticated processing and straightforward development we required. Our goals were to design for the Pocket PC form factor in order for the device to be used within the patient encounter and be expanded in the future. For writing code, we chose the integrated development environment Embedded Visual Basic. It features the ability to write modular code similar to VBScript and use "controls" that take the place of more complex language functionality. To save screen space, when additional data is needed, a pop-up screen captures the details. We designed the system for the handheld platform rather than converting web based or desktop based applications. We believe physicians who are actively using the system during the patient encounter will be in the best position to create the tools that serve them best.
RESULTS: We were able to create an initial prototype in a few weeks time and over a few months we had a system capable of helping manage diabetes. Since then we have been optimizing the interface to better match the handheld form factor. It now consists of five screens; reminders, problem selection, initial summary, patient history and exam interaction, and assessment/plan. Physicians using the system were able to operate independent of the desktop computer in the exam room, yet synchronize their data on a desktop computer at a different location. We were also able to implement an 802.11b wireless network so that users could stay connected continuously, improving flexibility in deployment of the system.
CONCLUSION: Specific development targets can be accomplished in a short time with modest programming effort. Other diseases can be managed by modifying the software appropriately. Further progress will depend on development and adoption of a standard information model, data model, lexicon and data interchange standard. By offering colleagues our source code, we hope to encourage others to collaborate and add functionality to the benefit of all. The open source model of medical software development is very appropriate for improving quality of care in under-served areas.

**CODE STATUS UNKNOWN: TAILORING AN ADVANCED HEALTH CARE DIRECTIVE FORM TO THE LITERACY LEVELS OF PATIENTS AT A PUBLIC HOSPITAL.**
R. Sudore[1], B. Brody[1], L. Lin[1], D. Schillinger[1]; [1]University of California, San Francisco, San Francisco, CA *(Tracking ID #50508)*

HRSA Grant Number: 2 D28PE19179-13
OBJECTIVES: Despite the fact that the mean reading level among Medicaid and public hospital patients is at the 5th grade level, most advanced directives are written at a post-graduate level. The inconsistent completion of advanced directives and establishment of code status, particularly among racial/ethnic minorities and lower socioeconomic groups, suggests that low literacy may be a barrier to the completion of advanced directives and may compromise the shared decision making process concerning end-of-life care. Through a HRSA-funded residency seminar entitled "Populations and Quality Improvement", we set out to replace the California Advanced health Care Directive with an advanced directive form tailored to the literacy levels of patients at San Francisco General Hospital.
METHODS: Using an iterative process involving consultation from hospital-based specialists in medical Humanities, risk management, end-of-life care, health education and health literacy, we created an advanced directive form for use in our public hospital. We further refined the form using feedback from in-depth interviews of 10 English-speaking patients cared for in the hospital's primary care clinics. We assessed the readability of both the California Advanced Health Care Directive and the new advanced directive form using the Flesch-Kincaid grade level score, a well established method to assess readability.
RESULTS: The California Advanced Directive was at a 12th grade reading. Our new advanced directive form was at a 5th grade reading level. The new form complied with California law, contained the clinical content deemed essential by medical experts, and was described by patients in structured interviews as easy to read and to complete.
CONCLUSION: Using an iterative process involving all stakeholders, we created an advanced directive form tailored to the literacy levels of patients at a public hospital. We are in the process of translating the form into other languages, and will be performing a randomized controlled trial to measure whether our form is associated with higher comprehension and completion rates than the standard California Advanced Health Care Directive.

# INNOVATIONS IN MEDICAL EDUCATION

**AN INTERNAL MEDICINE PROGRAM RESIDENTS' VIEWS ON RESEARCH.**
A. Achilleos[1], K. Judson[2], A. Baroni[2], N. Bellicini[2], S. Budampati[2], K. Clarke[2], M. Colflesh[2], H. Diamond[2], P. Kim[2], J. Ohr[2], M. Raflores[2], D. Fletcher[2]; [1]The Western Pennsylvania Hospital, Pittsburgh, PA; [2]West Penn Allegheny Health System, Pittsburgh, PA *(Tracking ID #52063)*

STATEMENT OF PROBLEM OR QUESTION: Despite having a research project as a requirement for the successful completion of our residency training, resident research productivity in our program, as measured by publications, regional and national meeting presentations, has not shown significant growth.
OBJECTIVES OF PROGRAM/INTERVENTION: To identify specific barriers precluding our residents from engaging in quality research activity was the goal of this residents led team.
DESCRIPTION OF PROGRAM/INTERVENTION: A resident led quality improvement committee reviewed the literature and formulated a questionnaire to assess our residents' views on research. They were asked to rate, on a scale of 1(strongly disagree) to 5(strongly agree), how much they value participating in research, assess the resources available to support their research and list the three most important barriers they perceived in designing and performing research.
FINDINGS TO DATE: RESULTS: 31 of 45 residents responded. Most agreed (score 4 or higher) that research activity helps with fellowship application (84%) and improves academic skills (77%). Most responders did not agree (score 3 or less) that research improves clinical skills (71%) or that residents should perform research (58%). Only 13% of responders felt prepared (score 4 or more) to begin a research project. Lack of knowledge about research was cited as the most frequent obstacle (35%). Lack of time and research-oriented faculty ranked 2nd and 3rd(22% and 21% respectively).
KEY LESSONS LEARNED: Lack of knowledge of how to organize research and of the resources available was a significant barrier to residents participating in research. The CQI committee developed a research manual that has been distributed to all the residents. A research coordinator was appointed and we started offering a research rotation to residents who show interest and progress in research projects.

**PERSONAL STATEMENT/RESIDENCY APPLICATION WORKSHOP FOR FOURTH YEAR MEDICAL STUDENTS.**
L.J. Adams[1]; [1]University of Colorado Health Sciences Center, Denver, CO *(Tracking ID #46744)*

STATEMENT OF PROBLEM OR QUESTION: Advising medical students about the residency application process is time consuming. The goal of this workshop was to provide a time efficient alternative to one-on-one student meetings while providing students with an opportunity to address common issues and questions about the residency application process. The personal statement causes students the most anxiety. It is important because it gives students an opportunity to present some of the non-quantitative aspects of their application and often serves as a springboard for interview topics.
OBJECTIVES OF PROGRAM/INTERVENTION: 1) Convince students of the importance of their personal statements; 2) Distinguish between the content of a personal statement and curriculum vitae; 3) Understand what residency programs are looking for in applicants; 4) Match the student's attributes and life experiences to the program; 5) Provide tools so that students feel prepared to write their first draft; and 6) Respond to students' questions about the residency application process including ERAS applications, NRMP, personal statement, curriculum vitae, and sources of advisement.
DESCRIPTION OF PROGRAM/INTERVENTION: The program was made available to all fourth year medical students applying to one or three year internal medicine programs. A slide presentation was developed to communicate key concepts in writing a personal statement and preparing a CV. Students participated in two activities: 1) They completed an inventory of their skills, experiences, attributes and accomplishments which provided content ideas for the personal statement, and 2) Using this inventory, they then planned the first draft of their personal statement. Examples of effective personal statements were shared. This 1.5 hour workshop was offered two times, late June and late July. 29 students participated in the workshops included several students who were undecided about career direction.
FINDINGS TO DATE: The workshop received very positive reviews (4.91 on a 5.0 scale) and students reported that they felt prepared to write the first draft.

KEY LESSONS LEARNED: While initial one-on-one consultations with each student were replaced by the workshop, it did not replace individual conferences as drafts of the personal statement were developed nor did it replace individual advising regarding which programs the students should apply to.
MODALITY USED TO DEMONSTRATE: Poster. The PowerPoint slides for the workshop will be shared as will the two worksheet activities.

**SELF-ACCOUNTABILITY: A POWERFUL TOOL TO IMPROVE LEARNER SKILLS.** R.C. Anderson[1], R.M. Wang-Cheng[1], D. Simpson[1]; [1]Medical College of Wisconsin, Milwaukee, WI *(Tracking ID #52166)*

STATEMENT OF PROBLEM OR QUESTION: Although physicians must understand "the need to engage in lifelong learning" per the 1998 Medical School Objectives Project's report, this training rarely is part of the medical school curriculum.
OBJECTIVES OF PROGRAM/INTERVENTION: Through an adaptation of a self-accountability process, we have developed a unique approach to teach medical students to be lifelong learners.
DESCRIPTION OF PROGRAM/INTERVENTION: During the month-long M4 student elective, "Apprenticeship with a Master Clinician," 8 students focus on improving core knowledge and skills in areas such as interviewing, physical examination, knowledge of disease and effective teaching. Students list 3 – 4 objectives to achieve by the conclusion of the rotation (e.g. recognize aortic stenosis murmur). Then, for each objective, students write down specific actions they will take to achieve the objective. (e.g. review audiotapes characterizing murmurs). Next, students develop indicators for progress relative to each objective. (e.g. correct identification of murmurs on a heart sound simulator). Last, for each objective, students list tangible evidence that indicates achievement of objectives (e.g. attending confirmation of aortic stenosis murmur).
FINDINGS TO DATE: Students retrospectively rated self-confidence in their chosen areas of self-accountability (1 = not confident, 6 = very confident). Mean ratings were calculated for the 4 categories and are displayed in Table 1.
KEY LESSONS LEARNED: The students significantly gained increased confidence in all key skill and knowledge areas by using the self-accountability process. In addition, they expressed satisfaction with the process itself. Self-accountability fosters life-long learning and provides the means to fill gaps by defining self-directed goals, methods and specific outcomes.
MODALITY USED TO DEMONSTRATE: Poster display and handout of self-accountability form.

**Self-Accountability**

| | Pre | Post | p Value |
|---|---|---|---|
| Interviewing (n = 35) | 2.9 | 4.8 | <0.05 |
| Physical Examination (n = 46) | 2.5 | 4.5 | <0.05 |
| Disease Knowledge (n = 14) | 2.1 | 4.2 | <0.05 |
| Teaching (n = 31) | 2.4 | 4.7 | <0.05 |

**A 20-MINUTE VIDEO AND OSCE STATION IMPROVED RESIDENT SMOKING CESSATION SKILLS.** R.C. Anderson[1], R.M. Wang-Cheng[1], E. Aschenbrenner[1]; [1]Medical College of Wisconsin, Milwaukee, WI *(Tracking ID #52181)*

STATEMENT OF PROBLEM OR QUESTION: In their continuity clinics, residents regularly encounter patients who smoke, but are inadequately prepared to provide smoking cessation counseling.
OBJECTIVES OF PROGRAM/INTERVENTION: To improve resident knowledge, skills and attitudes in smoking cessation.
DESCRIPTION OF PROGRAM/INTERVENTION: After administration of a questionnaire assessing knowledge and attitudes related to smoking cessation, residents received a one-hour didactic presentation on smoking cessation including a 20-minute video of several standardized patient encounters. Next, residents were tested at a standardized patient OSCE station where smoking cessation counseling skills were practiced. Three months later, the identical questionnaire was re-administered to the trained residents as well as to a control comparison group who had not gone through the training.
FINDINGS TO DATE: Baseline knowledge of smoking cessation issues was poor. Residents were not aware of the stages of change, how to use nicotine gum or how to recommend patient follow-up after a quit date. In addition, resident confidence in their knowledge and skills of smoking cessation was low. After the intervention, confidence increased compared to baseline and was at a higher level than the control group. Re-testing of knowledge revealed improvement in awareness of the stages of smoking cessation, use of nicotine gum and recommended patient follow-up. Specific data results from the questionnaire will be presented on the poster.
KEY LESSONS LEARNED: A 20-minute video and OSCE station on smoking cessation can increase knowledge and improve confidence in smoking cessation skills. Awareness of the importance of patient smoking cessation was increased by this brief 3-hour intervention and persisted 3 months later. We predict residents will be more likely to routinely counsel patients about smoking cessation and be more effective in their delivery. This intervention is useful as a model for other residency programs.
MODALITY USED TO DEMONSTRATE: Poster display and handout of smoking cessation questionnaire.

**SENIOR MEDICAL STUDENTS ARE AS GOOD AS FACULTY AT EVALUATING THIRD YEAR STUDENT CASE PRESENTATIONS AT AN OSCE STATION.** R.C. Anderson[1], R.M. Wang-Cheng[1], D. Bragg[1]; [1]Medical College of Wisconsin, Milwaukee, WI *(Tracking ID #52291)*

STATEMENT OF PROBLEM OR QUESTION: With USMLE testing soon to require satisfactory OSCE performance, medical schools have a greater need to teach and evaluate students by OSCE testing. Direct observation by faculty of student performance is preferable but the time expense is prohibitively great.
OBJECTIVES OF PROGRAM/INTERVENTION: To investigate whether M4 students can effectively evaluate the OSCE performance of M3 students.
DESCRIPTION OF PROGRAM/INTERVENTION: 190 M3 students took a required 7-station Benchmark OSCE near the end of their 3rd year. One of these stations involved a college-aged standardized male patient who presented with acute abdominal pain. The student had 10 minutes to obtain a history and perform a physical exam. Then, at the next station, the student had to present his history and physical findings as well as his presumed diagnosis and plan to a faculty or student evaluator. Evaluators filled out a 30-item content checklist covering the history (14 items), exam (10 items), differential diagnosis (2 items) and plan (4 items).
FINDINGS TO DATE: The overall performance ratings (out of the possible 30 content items) by the student and faculty evaluators are displayed in the table below. There were 6 unique student evaluators and 11 unique faculty evaluators.
KEY LESSONS LEARNED: M4 students were just as discriminating and reliable as faculty in evaluating M3 OSCE performance. Direct observation of M3 students by M4 students on OSCE testing should be considered as a cost-effective strategy.
MODALITY USED TO DEMONSTRATE: Poster display.

**OSCE Evaluation**

| | Student Evaluations (n = 28) | Faculty Evaluations (n = 162) | Levene's Test for Equality of Variances |
|---|---|---|---|
| Mean Abdominal pain score (out of 30 items) | 18.8 (SD 3.0) | 19.5 (SD 2.9) | p = 0.854 |

**REFLECTIVE NARRATIVE AS A METHOD TO LEARN FROM PRECEPTING IN THE PRESENCE OF PATIENTS: OPERATIONALIZING SCHON'S MODEL FOR LEARNING FROM EXPERIENCE.** R. Barker[1]; [1]Johns Hopkins Bayview Medical Center, Baltimore, MD *(Tracking ID #51773)*

STATEMENT OF PROBLEM OR QUESTION: Clinical Precepting entails triple advocacy (for the patient's health, the trainee's learning, and one's own development as a preceptor). Preceptors have unique opportunities to enhance their triple advocacy skills when they are precepting in the presence of patients (PITPOP).
OBJECTIVES OF PROGRAM/INTERVENTION: To explore the use of reflective narrative as a method that can be used by preceptors to learn from PITPOP.
THEORETIC BASIS: Schon's model for learning from experience through reflection-in-action (RIA) and reflection-on-action (ROA). Reflection combines being aware of one's past and current experience and making choices both during (RIA) and after (ROA) engaging in an activity.
DESCRIPTION OF PROGRAM/INTERVENTION: (1) Dictate recalled aspects of just-completed PITPOP encounters; include "invisible" aspects as well as aspects that would be "visible" in audio or video tapes of the encounter. (2) Review dictated narrative and identify options for maintaining or modifying one's approach to PITPOP.
FINDINGS TO DATE: (sample narratives will be displayed): (1) There are usually surprises. (2) One processes multiple feelings, assessments, decisions (invisible RIA) that drive one's verbal input (visible RIA). (3) Reflection-on-action: Typically, there are aspects of PITPOP that yield personal satisfaction (e.g. "I saw for myself how this trainee has won the trust of that patient and her daughter"); that disclose critical information about a trainee (e.g. "From observing this trainee with multiple patients, I noted that his/her proficiencies vary from patient to patient, usually for observable reasons"); that raise questions about one's impact upon patient or trainee (e.g. "Did trainee observe/learn when I modeled open, not leading, question style?") and that suggest options for addressing future encounters differently (e.g. "Rather than exiting to confer in the hall, I will try to voice alternative thinking about assessment or plan in the presence of the patient and make it transparent and helpful for patient and trainee").
KEY LESSONS LEARNED: Reflective narrative is an approach that could be used by any preceptor to illuminate his/her skills and to discover options for making changes. Ideally, narratives would be used as part of planned enhancement of one's own and others' precepting skills. Checking with trainees and even having trainees dictate their own reflective narratives would expand the learning potential for this process.

**A TEACHING SKILLS COURSE FOR RESIDENTS ON AMBULATORY BLOCK.** M. Bharel[1], S. Jain[1]; [1]University of California, San Francisco, San Francisco, CA *(Tracking ID #51593)*

STATEMENT OF PROBLEM OR QUESTION: Residents are essential teachers and play a critical role in the education of interns and medical students. Unfortunately, little attention is given to this important role and few residency programs offer formal training to improve teaching skills.
OBJECTIVES OF PROGRAM/INTERVENTION: We designed a innovative three-month teaching curriculum for our medical residents that supplements the standard short teaching course provided at the end of internship.
DESCRIPTION OF PROGRAM/INTERVENTION: We instituted our curriculum as part of the three-month ambulatory medicine rotation for second year residents. During this block, residents give several presentations during morning conference. Our curriculum consists of three components, each of which was repeated before and after each resident presentation. The week before leading a session, the resident is required to meet individually with a faculty member to discuss the topic that he has chosen and discuss the teaching points he plans to make. Immediately after the talk ends, all of the second-year residents, as well as the two faculty coordinators, meet as a group with the presenter to provide both positive and constructive feedback on the talk, focusing on teaching style and effectiveness rather than content. Finally, the resident meets individually with a faculty member after each talk to review teaching performance as well as to review principles of teaching.
FINDINGS TO DATE: To assess the effectiveness of our educational intervention we asked the residents to complete a self-assessment survey at the beginning and end of the three-month

block assessing their teaching skills. The instrument consisted of 27 questions on a five point Likert scale, asking residents to rate their teaching skills relating to organization, enthusiasm, knowledge, rapport, instructional skills, and professionalism. Of the 27 questions asked, the mean post-intervention score was significantly higher than that measured before the intervention for all but five of the questions. For example, the residents felt more prepared to facilitate discussion ($p < .001$) and more prepared to correct learner mistakes ($p < .001$). The residents overall assessment of their teaching skills improved after the curriculum ($p = .03$).
KEY LESSONS LEARNED: The focus of our new curriculum is based on each resident outlining his or her strengths and weaknesses so that teaching improvements can be made on a personalized level. At the same time we are able to cover some basic teaching principles. Our survey suggests an improvement in self-assessment of teaching skills. We plan to review evaluations completed for each resident to obtain an objective assessment of whether their teaching skills have improved as a result of this intervention. We believe this formalized feedback system significantly enhances resident teaching skills and can easily be established in most institutions.

**Self-Assessment Survey Results**

| Domain | Statement | Pre-Intervention | Post-Intervention | p Value |
|---|---|---|---|---|
| Organization | I feel that I am prepared to summarize major points. | 3.73 | 4.32 | <0.001 |
| Organization | I feel that I am prepared to communicate what is expected to be learned. | 3.36 | 4.13 | <0.001 |
| Enthusiasm | I feel that I am someone who enjoys teaching. | 4.05 | 4.41 | 0.01 |
| Enthusiasm | I feel that I am prepared to express my own enthusiasm about the subject. | 3.73 | 4.32 | <0.001 |
| Knowledge | I feel able to reveal broad reading in medicine. | 3.14 | 3.59 | 0.02 |
| Rapport | I feel comfortable establishing a rapport with others. | 4.00 | 4.55 | 0.005 |
| Instructional skills | I feel prepared to encourage active participation in discussion. | 3.32 | 4.09 | <0.001 |
| Professional characteristics | I am generally open-minded and nonjudgmental. | 3.41 | 4.18 | <0.001 |
| Overall teaching skills | Overall I feel my teaching skills are excellent. | 3.52 | 3.82 | 0.03 |

**STUDENT AMBULATORY CLERKSHIP PERFORMANCE DIFFERENCES BETWEEN HIGH AND LOW ACHIEVERS.** E.B. Bradley[1], E.C. Corbett[1]; [1]University of Virginia, Charlottesville, VA *(Tracking ID #50336)*

STATEMENT OF PROBLEM OR QUESTION: Addressing differences between high and low achieving medical students is an important concern of medical education. The University of Virginia has defined 12 Medical School Objectives (MSO's) for undergraduate medical education. A study of clerkship evaluation data was undertaken to investigate the differences in the ambulatory medicine clerkship scores of high achieving versus low achieving medical students. These differences have implications for achieving these MSO's for all students.
OBJECTIVES OF PROGRAM/INTERVENTION: 1. Describe student scores organized by the 12 MSO's. 2. Define high versus low achievers, and identify differences in scores on each objective.
DESCRIPTION OF PROGRAM/INTERVENTION: In an effort to continually improve the quality of teaching and learning in the Ambulatory Internal Medicine (AIM) Clerkship at the University of Virginia, an analysis of 2 years of clerkship data was undertaken to gain insight into the differences between high and low achieving students. The data was derived from community preceptors' evaluations of each clerk, using a 15 question, 9-point scale. No overall evaluation score is asked of the preceptor. Individual scores were averaged to obtain on overall score for each student. The 15 items on the instrument mirror the content of the 12 Medical School Objectives. Scores were divided into three groups: high, average, and low achievers. High achieving students were defined as having a score one standard deviation or more above the overall, and low achieving students are defined as one standard deviation or more below the overall. The two groups were compared on the 15 items, and the scoring differences between the groups were identified.
FINDINGS TO DATE: Over a 2-year period of time, 558 preceptor evaluations of student clerks were collected. The overall average score of AIM students is 7.66 on a scale of 1 to 9. High achieving students averaged 8.75 or greater, and low achieving students average 6.04 or less. On all items high achieving students scored better than low achieving students. The largest differences between students have to do with the Medical School Objectives that describe their ability to develop care plans (difference=3.08), to develop differential diagnoses (3.07), to perform a clinical history (3.04.), and to perform a physical exam (3.01). The smallest differences occur in the ratings of their humanistic attributes (2.00) and in their ability to relate to the staff and colleagues (1.96).
KEY LESSONS LEARNED: 1. We learned there are important differences between these high and low achieving students. 2. The consistency of the findings over time reinforces the enduring nature of these issues. 3. The Medical School Objectives provide a useful framework for identifying basic competencies in ambulatory internal medicine.

**THE AMBULATORY TEACHING RESIDENT: ANOTHER APPROACH TO AMBULATORY MORNING REPORT.** C.A. Brown[1], P.A. Cohen[1], R.J. Pels[1]; [1]Dept of Medicine, Cambridge Hospital, Cambridge, MA *(Tracking ID #51369)*

STATEMENT OF PROBLEM OR QUESTION: Both formal and informal surveys of residents and faculty in our residency program demonstrated a need for more evidence-based ambulatory medicine in the residency curriculum.
OBJECTIVES OF PROGRAM/INTERVENTION: An Ambulatory Teaching Resident (ATR) rotation was designed for third-year internal medicine residents with the following goals: 1. to develop competencies in ambulatory medicine, 2. to improve teaching skills, and 3. to increase resident confidence in managing outpatient medical issues.
DESCRIPTION OF PROGRAM/INTERVENTION: One fourth of internal medicine residency programs have used ambulatory morning report to address ambulatory curricular issues, usually with a faculty member or a Chief Resident as the discussant (JGIM 11/00.) We created a four-week ATR rotation in which a third-year medicine resident selects ambulatory cases, reviews relevant medical literature, and then prepares and facilitates a 45 minute case-based, interactive teaching conference four mornings per week. Residents are encouraged to use active cases of their own or other residents attending Ambulatory Morning Report. Over the period of September, 2001 to May, 2002, all eight third-year medicine residents will have completed this rotation, which replaces a block of traditional ambulatory subspecialty medicine. The ATR is relieved of most patient care responsibilities, except continuity clinics. A Primary Care faculty member attends each Ambulatory Morning Report and gives the resident feedback after the session; four Attendings share this responsibility. One of these Attendings also serves as a mentor, providing guidance, support, and feedback to the resident on learning goals, case selection, literature review, and teaching. The course coordinator submits a summary evaluation for the resident to the Residency Evaluation Committee. The ATR and faculty members evaluate the rotation through structured, in-depth interviews.
FINDINGS TO DATE: Early response to this rotation is overwhelmingly enthusiastic. Three of the four residents who have completed the rotation to date have been interviewed and all report that they are either satisfied or highly satisfied with their improved knowledge base and increased confidence when caring for continuity patients. All three residents also report an improvement in their teaching skills. Early discussions with ATR faculty corroborate the residents' self-report of improved knowledge base and teaching ability.
KEY LESSONS LEARNED: Our observed need to expand the ambulatory medical curriculum provided a unique opportunity to develop both a new teaching rotation and a new teaching conference. Proactive mentoring and tight feedback appear to enhance independent learning and progressive teaching skills development.

**THE VIRTUAL STANDARDIZED PATIENT: PILOT TEST OF A VIDEOCONFERENCING TOOL TO TEACH INFORMED DECISION MAKING SKILLS.** S.L. Clever[1], D. Novack[2], D. Cohen[2], W. Levinson[3]; [1]University of Chicago, Chicago, IL; [2]MCP-Hahnemann School of Medicine, Philadelphia, PA; [3]University of Toronto, Toronto, Ontario, Canada *(Tracking ID #52175)*

STATEMENT OF PROBLEM OR QUESTION: Standardized patients (SPs) have been advocated as a means of evaluating communication skills, but are expensive to train and maintain. Videoconferencing technology (VCT) could alleviate this problem by allowing SPs and learners in different locations to interact. The American Academy of Orthopedic Surgeons (AAOS) recently identified improving communication skills as a top priority for its members, and sought innovative training programs to address this issue.
OBJECTIVES OF PROGRAM/INTERVENTION: We sought to address both of these issues by testing the feasibility and acceptability of using VCT to create a virtual visit between an SP and orthopedic surgeons located in separate cities.
DESCRIPTION OF PROGRAM/INTERVENTION: We trained an SP to represent a 75-year-old woman considering hip replacement surgery, and to give feedback to orthopedic surgeons regarding their informed decision making (IDM) skills. Surgeons at the AAOS's training center in Chicago interacted with our SP in Philadelphia using VCT. Both could see and hear each other on a large television screen. The surgeon took a history from the SP, then discussed hip replacement surgery with her. The SP evaluated the surgeon's advice using a checklist of IDM elements, such as how thoroughly the surgeon informed her of the clinical nature of the arthritis and the risks of surgery. Immediately after the "visit", she gave each surgeon structured verbal feedback regarding whether or not he had included each element of IDM, with suggestions for improvement. She also provided the surgeon with written feedback summarizing his performance.
FINDINGS TO DATE: A convenience sample of 22 surgeons completed the project; all were male. Surgeons generally liked the exercise: 85% stated they would recommend it to peers to learn IDM skills. Their median score for the activity's usefulness as a means of learning communication skills was 4.5 (ratings ranged 1 – 5, 5 = Very Useful). Seven (32%) felt hampered in explaining the surgery because they did not have props (such as anatomical models) available to them. Three objected to suggestions to change their IDM conversations. Positive comments were more typical, however, such as "This is of enormous value" and "Every member of the Academy should do this."
KEY LESSONS LEARNED: The Virtual Standardized Patient was technically feasible and acceptable to orthopedic surgeons to teach and evaluate patient-surgeon communication. This raises the potential of setting up centralized SP programs that may allow long-distance communication training and evaluation for a variety of clinicians.
MODALITY USED TO DEMONSTRATE: Oral or poster presentation with videotape of SP and surgeon interacting.

**NEGOTIATING GOALS AND OBJECTIVES: A WORKSHOP FOR FACULTY AND THEIR RESIDENTS.** D. Coniglio[1], J.H. Silverstein[1], N.J. Farber[1]; [1]Christiana Care Health System, Wilmington, DE *(Tracking ID #50357)*

STATEMENT OF PROBLEM OR QUESTION: The majority of our community-based physician educators who residents spend a great deal of time with, have little faculty development experience.

OBJECTIVES OF PROGRAM/INTERVENTION: In order to maximize resident education a mini-series of workshops was presented at our institution to help improve primary care, community-based faculty's teaching skills. We were especially interested in improving faculty's comfort with the process of negotiating goals and objectives with residents.
DESCRIPTION OF PROGRAM/INTERVENTION: The first of three workshops was on setting goals and expectations in the outpatient venue. The workshop was unique in that it involved both preceptors and residents. After a brief didactic period, the faculty and the residents that they precept in their practices negotiated a set of goals to be used in the upcoming year. At the end of the session, each participant was asked to rate themselves both retrospectively and currently in the following five areas: 1) understanding the reason for setting goals; 2) ability to set goals; 3) ability to communicate their goals; 4) ability to negotiate mutual goals; and 5) confidence in using these goals to evaluate the learners' performance. Performances before and after the workshop were analyzed via paired student's t-Tests.
FINDINGS TO DATE: Thirteen community-based faculty members participated in the workshop. In all 5 categories, the pre/post comparison revealed a significant increase in knowledge, ability and comfort with the presented material ($p < 0.001$).
KEY LESSONS LEARNED: Experiential learning involving both preceptors and their residents can be an asset in community-based faculty development. Involving resident physicians allow community-based faculty not only to understand the process of negotiating and communicating a set of goals and expectations, but to use these skills in a practical setting.
MODALITY USED TO DEMONSTRATE: Curricular materials, and samples of negotiated sets of goals and expectations by community-based faculty and residents.

**A NOVEL TOOL FOR TEACHING ABOUT LIMITED RESOURCES AND THE CLINICAL CONSEQUENCES.** M. Danis[1], S.D. Goold[2], B.C. Williams[2]; [1]National Institutes of Health, Bethesda, MD; [2]University of Michigan, Ann Arbor, MI *(Tracking ID #51446)*

STATEMENT OF PROBLEM OR QUESTION: Medical students and residents have little understanding of the cost constraints in health care delivery and lack experience and useful strategies for approaching resource allocation.
OBJECTIVES OF PROGRAM/INTERVENTION: To teach medical trainees about limited resources, various ways in which health care is rationed, and the consequences for patients. To promote cost-consciousness and teamwork.
DESCRIPTION OF PROGRAM/INTERVENTION: CHAT, Choosing Healthplans All Together, is a game originally developed to allow incorporation of public preferences into the design of health insurance benefit packages. An educational version is used to teach learners at multiple levels and from multiple disciplines (medicine, pharmacy, social work, and nursing). The game involves group decision making facilitated by a game board and health event cards. Groups decide together on a health insurance package, then encounter health events to experience the consequences of their benefit choices.
FINDINGS TO DATE: Eighty diverse lay groups (N = 844 individuals), have found the game informative (95%) and easy to use (96%). They also report that they learned alot (70%) and that it motivated them to learn more about health insurance (72%). Both lay groups and clinical trainees in debriefing sessions remarked that the game showed them "you can't have it all" and made them aware of the needs of other individuals and the community.
KEY LESSONS LEARNED: CHAT is a valuable strategy for teaching about the need to ration and strategies for fair resource allocation.

CHAT demonstration.

**GENETICS IN PRIMARY CARE CURRICULUM AND PRODUCTS.** A. Davis[1], E.C. Rich[2], N. Kahn[3], W. Burke[4], K. Fryer-Edwards[4]; [1]AKD Consulting, Mulkilteo, WA; [2]Creighton University, Omaha, NE; [3]American Academy of Family Physicians, Leawood, KS; [4]University of Washington, Seattle, WA *(Tracking ID #52637)*

STATEMENT OF PROBLEM OR QUESTION: The Genetics in Primary Care (GPC): A Faculty Development Initiative, funded in 1998 by the Health Resources and Services Administration with cofunding from the National Human Genome Research Institute and the Agency for Healthcare Research and Quality, has implemented and evaluated the GPC Training Program for faculty teams from twenty institutions. An external evaluation team from the Medical College of Wisconsin is conducting an evaluation of the Program, using the CIPP model of examining context, input, process and product. A case-based curriculum has been developed and clinical/educational products are currently under development.
OBJECTIVES OF PROGRAM/INTERVENTION: The goal of the GPC is to enhance the ability of faculty to incorporate the clinical application of genetic information into undergraduate and graduate primary care medical education.
DESCRIPTION OF PROGRAM/INTERVENTION: During Phase I (18 months), an interdisciplinary Executive Committee and Advisory Committee representing 37 organizations engaged in considerable discussion concerning the design of the GPC Training Program. At the beginning of Phase II, a competitive process was used to select twenty faculty teams to participate in the GPC Training Program. Based on input received from the GPC Advisory Committee and faculty team members, site visit reports, and evaluation reports, Phase II activity of the GPC has been extended for the purpose of developing collaborative products intended to enhance faculty development activities at teams' institutions and to be of potential national benefit.
FINDINGS TO DATE: Products (i.e., clinical tools and educational modules) are needed to help bridge useful application of genetic knowledge in primary care practice. Products in four areas have been identified as critical to the underpinning of this bridge: 1) family history taking tools for primary care settings; 2) red flags to alert general internists and family physicians about possibilities of genetic explanations for primary care problems; 3) resources to assure culturally competent genetics applications in primary care; and 4) improved evidence base for applying genetics advances in primary care.
KEY LESSONS LEARNED: Case-based materials taken from core areas of primary care have been proven essential resources for bridging the gap between primary care practice and advances in human genetics. Clinical tools as well as educational materials are needed to engage sustained primary care physician and learner interest in genetics topics, however.
MODALITY USED TO DEMONSTRATE: Electronic access to the GPC Curriculum and prototype clinical tools will be displayed in addition to hard copy samples of materials.

**FAMILY MEDICINE CURRICULUM PROJECT'S CURRICULUM RESOURCE PRODUCT.** A. Goroll[1], R.E. Fincher[2], T. Defer[3], A. Whelan[3], L. Headrick[4], A.K. Davis[5], J. Stearns[6]; [1]Massachusetts General Hospital, Boston, MA; [2]Medical College of Georgia, Augusta, GA; [3]Washington University, St Louis, MO; [4]Case Western Reserve University, Cleveland, OH; [5]AKD Consulting, Mukilteo, WA; [6]University of Wisconsin-Milwaukee Clinical Campus, Milwaukee, WI *(Tracking ID #52638)*

STATEMENT OF PROBLEM OR QUESTION: The traditional departmental focus of clinical medical education is incongruent with the interdepartmental practice of medicine. The Family Medicine Curriculum (FMC) Project is a collaborative effort of family medicine, general internal medicine and general pediatrics to examine the current medical school family medicine curriculum in the context of broader educational preparation of all physicians.
OBJECTIVES OF PROGRAM/INTERVENTION: The goal of the FMC Project is to develop a product that will be useful to all medical educators who develop curricula to prepare medical students for practice in the 21st century. The product will address pre-clerkship, family medicine clerkship, and post-clerkship education.
DESCRIPTION OF PROGRAM/INTERVENTION: The initial step analyses the broad range of competencies at graduation required of all students by the current family medicine curriculum, and includes key content areas of interest identified by the Federal Government: behavioral medicine, including substance abuse; genetics; geriatrics; end-of-life care; informatics; oral health; and the national health objectives of Healthy People 2010. Collaboration with general internal medicine and general pediatrics involves three levels. First, internal medicine and pediatrics organizations are joined with family medicine organizations in representation on the FMC Advisory Committee, which oversees development and outcomes of all components of the end product. Second, internal medicine, family medicine, and pediatrics representatives will make recommendations concerning prerequisites for students entering the clinical clerkships. Third, an interdisciplinary workgroup will integrate the recommendations from the three specialties into the pre-clerkship component of the product.
FINDINGS TO DATE: Initial analysis reveals a high level of congruence in the curricular expectations of each of the specialties.
KEY LESSONS LEARNED: The FMC Executive and Advisory Committees have determined that a few overarching curricular guidelines/competencies that are fundamental to all specialties will be more useful to medical educators than many specific guidelines and competencies.
MODALITY USED TO DEMONSTRATE: A poster will highlight: 1) overarching curricular guidelines/competencies for the FMC end product; 2) current status of defining recommendations for clerkship prerequisites; and 3) information available at the FMC web site for ongoing input regarding the project.

**FEMALE GENITAL TEACHING ASSOCIATES AND RESIDENT EDUCATION.** J.G. Dixon[1], D.J. Castaldo[1], G.E. Green[1], D.R. Golay[1]; [1]Eastern Virginia Medical School, Norfolk, VA *(Tracking ID #52098)*

STATEMENT OF PROBLEM OR QUESTION: The Internal Medicine residency review committee now requires residency program directors to certify trainees as competent performing a breast and pelvic exam.
OBJECTIVES OF PROGRAM/INTERVENTION: This study assesses resident perceptions of a genital teaching associate education session (G.T.A.).
DESCRIPTION OF PROGRAM/INTERVENTION: Internal, family, and combined family/internal medicine residents performed a breast and pelvic exam on a G.T.A. who assessed their performance using a 78 item checklist and the spent time teaching the residents. Prior to and after the G.T.A. session residents, using a 6 point Lickert scale (1 = strongly disagree, 6+ strongly agree), documented their confidence performing the breast and pelvic exam, and certain

components of the pelvic exam. Resident responses (disagree = Lickert 1 – 4, agree Lickert 5, 6) were compared by chi-square analysis. Residents indicated how they would modify future exams.
FINDINGS TO DATE: Amongst all the participating residents {internal (n = 20), family (n = 20), and combined (n = 9)}, over 88% had previously received instruction by a female G.T.A. The percentage of residents agreeing with the statements below was significantly higher (P < .05) after participating in the G.T.A. session. (See inserted table) No significant difference exists when post-G.T.A. resident responses to these statements are contrasted by post-graduate level of training (PGY-1 vs. > PGY-1) and discipline (combined and family practice vs. internal medicine). Over 60% of residents agreed with the statements, "based on today's G.T.A. session I will modify my pelvic exam technique" and "I will modify by breast exam technique". 76% of the residents indicated they will start performing breast exams with the patient seated upright, "Manual Mammogram".
KEY LESSONS LEARNED: Residents are more likely to indicate confidence with the breast and pelvic exam after a G.T.A. education session.

**Important Findings**

| **Statement** | **Participants (%) Who Agree (Lickert 5 & 6)** | |
|---|---|---|
| | Pre-G.T.A | Post-G.T.A |
| I am confident performing... | | |
| Breast exams | 67.9 | 95.7 |
| Pap/pelvic exams | 57.1 | 91.3 |
| When performing a pelvic exam I am able to... | | |
| Palpate the adenexa | 38.6 | 69.6 |
| Minimize patient discomfort | 60.7 | 89.1 |
| Ascertain the position of the uterus | 36.4 | 71.7 |

**AUTOMATED PREOPERATIVE EVALUATION SYSTEM (APES).** N. Do[1]; [1]Madigan Army Medical Center, Fort Lewis, WA *(Tracking ID #51688)*

STATEMENT OF PROBLEM OR QUESTION: Preoperative evaluations can be daunting for clinicians in training or clinicians who don't perform these evaluations regularly. The process of surgical risk assessment or planning for risk modification requires integration of a variety of data sources, which then have to be processed and disseminated. Clinical best practices need to be applied throughout the procedure to ensure patient safety and quality of care. Three major problems that are often encountered by Housestaff during a preoperative evaluation are unfocused data collection, lack of timely access to knowledge base, and lengthy report preparation. Inexperienced clinicians either collect too much unnecessary information or not enough information pertaining to surgical risks. During an evaluation, they may not have quick access to the most current recommendations or guidelines and may have to spend extra time searching for references. A well prepared preoperative report that contains all the pertinent information and recommendations requires considerable time investment. Since preoperative evaluations can be highly structured and approachable through algorithms, we have developed a computer program that automates many of the tasks and provides some clinical decision support.
OBJECTIVES OF PROGRAM/INTERVENTION: One objective of the APES is to bring all references such as published risk indices and guidelines in one location and integrate them in the evaluation procedure so that best clinical practice can be achieved. The second objective is to provide mechanisms for rapid data entry and report generation to improve efficiency and productivity. The third but key objective is to provide an information infrastructure for research in the field of perioperative medicine. If information gathering and reporting can be standardized then it can be shared among many medical centers.
DESCRIPTION OF PROGRAM/INTERVENTION: The APES uses mostly radio buttons and check boxes to collect data. The data elements chosen are based on published studies and clinical experience at Madigan. Pre-formatted texts are produced for the report based on the options selected, which can be further edited if needed. Cardiac and pulmonary risk indices and guidelines from the ACP, ACC/AHA, and ACCP are integrated within the program as well as recommendations and protocols for management of diabetes, liver disease, anticoagulation, perioperative beta-blocker, and other disease states that affects surgical risk.
FINDINGS TO DATE: Feedback from users of the alpha version has been positive in terms of educational value and time efficiency.
KEY LESSONS LEARNED: An information system for preoperative evaluation can enhance the learning experience of Housestaff and provide a mean for other clinicians to achieve clinical best practices.
MODALITY USED TO DEMONSTRATE: Live demonstration of the system.

**COMMUNICATING WITH OLDER ADULTS: A CD-ROM.** E. Dugan[1], S. Tennstedt[1], K.M. Freund[2]; [1]New England Research Institutes, Watertown, MA; [2]Boston Medical Center, Boston, MA *(Tracking ID #51509)*

STATEMENT OF PROBLEM OR QUESTION: Older adults are the fastest growing demographic group in the United States. Many older adults have one or more chronic diseases that are detected and then managed by primary care providers. Although some medical schools now provide instruction on issues related to providing care to older patients, most practicing physicians have not had any focused training in this critical area.
OBJECTIVES OF PROGRAM/INTERVENTION: Our goals were to: 1) develop an interactive educational CD-ROM to provide the knowledge and skills to improve communication between primary care providers and their older patients, and 2) to evaluate the effectiveness of the CD-ROM compared to a standard book chapter.
DESCRIPTION OF PROGRAM/INTERVENTION: The content was developed in consultation with geriatricians and primary care internists and further informed by focus groups with patients and providers. Four modules were created: 1) "A Therapeutic Relationship" contains information about establishing a therapeutic relationship, communication challenges, and managing follow-up visits with older patients. 2) "Concern for Older Patients" is comprised of information about loss of independence, chronic illness and comorbidities, end-of-life issues. 3) "Hidden Conditions" provides information about detecting hidden medical and social conditions, such as incontinence, alcoholism, and elder abuse. 4) "Health Promotion" includes information about minimizing health risks and injuries, encouraging healthy behaviors, and health promotion and disease prevention in later life.
FINDINGS TO DATE: A randomized field trial is currently underway to determine if the CD-ROM improves knowledge of, attitudes toward, and communication with older adults. A focus group with providers emphasized the importance of securing CME credit for the program. A CME self-test is included in the CD-ROM and may be returned for 3.25 hours of credit.
KEY LESSONS LEARNED: CD-ROM technology can provide learners with both didactic information and with models of successful communication skills and interactions with older patients. For example, learners can click on sections to hear a patient's point of view, obtain practice management advice from clinical experts, read text, watch filmed dramatic vignettes illustrating effective and ineffective techniques, link to additional resources on the WWW, and observe roundtable scientific discussions. The interactive features of the CD-ROM facilitate more self-directed learning, which accommodates the learner's schedule, interests, and skills.
MODALITY USED TO DEMONSTRATE: Presenter's personal IBM compatable laptop PC with CD-ROM.

**NUTRITION EDUCATION INCORPORATED INTO AN INTERNAL MEDICINE CLERKSHIP.** B.G. Dwinnell[1], L. Primak[1], L.J. Adams[1]; [1]University of Colorado Health Sciences Center, Denver, CO *(Tracking ID #46576)*

STATEMENT OF PROBLEM OR QUESTION: One challenge in medical education is how to incorporate necessary content from an ever expanding body of knowledge without adding to an already dense curriculum. Despite its obvious importance, education in nutrition has been particularly lacking in medical school curriculum.
OBJECTIVES OF PROGRAM/INTERVENTION: Our objectives were to educate students on fundamental principles of nutritional assessment and provide them with the skills to apply them to particular disease states. Incorporating them into an established junior clerkship would allow us to acknowledge the importance of nutrition concepts and give them clinical context without adding to an already burdensome curriculum.
DESCRIPTION OF PROGRAM/INTERVENTION: The University of Colorado received a Nutrition Academic Award (NAA) Program grant (PI, Nancy Krebs, MD, MS) which allowed us to focus resources on intergrating nutrition content and clinical skills into existing curriculum. We chose the ambulatory internal medicine experience, which is one month of a three month clerkship, as a logical place to integrate such curriculum. As a part of the ambulatory month, the students complete a case workbook created from the SGIM/CDIM Core Medicine Clerkship Guide. The workbook allows us to implement curriculum across multiple clinical sites despite the variability of patient exposure and preceptor expertise. Six workbook cases were targeted for increasing the nutrition content: health promotion/disease prevention, dementia, chest pain, hypertension, diabetes mellitus and dyslipidemias. The added nutrition content covers two areas: assessment and intervention. Assessment includes physical exam (body mass index, waist circumference) and history (diet supplements, activity). Intervention includes dietary changes and weight and physical activity recommendations.
FINDINGS TO DATE: A sampling of workbook responses have been reviewed for correct responses to the integrated nutrition content. The students are then provided an answer key for the workbook. In addition they discuss selected cases with their faculty preceptors. Thus far, the variability in responses has lead to further collaborative efforts between the nutrition faculty and other clinical faculty to modify the presentation of the nutrition curriculum in the first two years. We are integrating more nutrition content into the physical exam instruction that occurs in the preclinical years.
KEY LESSONS LEARNED: Many students at our institution do not possess knowledge and skills in basic nutritional assessment and interventions when entering their clincal years. Through collaborative efforts, important nutrition content can be added to existing clinical curriculum without adding to an already dense curriculum.
MODALITY USED TO DEMONSTRATE: Poster.

**HOME VISITS IN TWO INNER-CITY RESIDENCIES.** L.A. Dyche[1], C.A. Schwartz[1], C.L. Smith[1]; [1]Albert Einstein College of Medicine, Bronx, NY *(Tracking ID #52151)*

STATEMENT OF PROBLEM OR QUESTION: Internal Medicine residents know surprisingly little about their outpatients beyond medical diagnosis and treatments. They lack information about patients' personal histories, and family and neighborhood realities that significantly shape illnesses and their treatments.
OBJECTIVES OF PROGRAM/INTERVENTION: 1. To train residents to gather direct information on the building, neighborhood and community and learn how these shape patient identity and health. 2. To develop residents' skills in conducting home interviews and assessments. 3. To teach residents how home visits can improve understanding of adherence issues. 4. To help residents experience the shift in power dynamics from the office to the home as a means to enhance collaboration skills in the office. 5. To develop residents' skills in selecting appropriate patients and in learning strategic timing for home visits.
DESCRIPTION OF PROGRAM/INTERVENTION: Residents in two allied ambulatory care-oriented medicine programs (Primary Care Internal Medicine and Social Internal Medicine) have one dedicated session to make home visits during each of their outpatient rotation months. Continuity care patients are selected and visits planned with the help of faculty. One to two visits are made during the allocated time, either in pairs or with faculty. Residents complete home visit report sheets detailing the goals of the visit, describing the patient's context, outlining the process, the new data obtained and the outcome of the visit. Home visit rounds led by faculty are held each month where visits are reviewed in detail. Both programs are supported in part by grants from the Arnold P. Gold Foundation.

FINDINGS TO DATE: Compiled data from 23 residents' home visit reports show that new data relevant to diagnosis or treatment was gathered during 19 (83%) of the visits.
In 17 post-visit phone follow up interviews, all but two patients indicated the visit was valuable to their own medical care, and all said that it was a valuable service to offer to patients.
Qualitative data obtained from two focus groups of graduating residents indicate that the home visits provided them a unique and important learning experience, and all said they expect to make home visits in their future practices.
KEY LESSONS LEARNED: A program of faculty-supervised home visits, while time intensive at its inception, increases the number of home visits, the amount of data gathered and is an excellent vehicle for helping residents develop cultural competence. Patients respond positively to visits and the doctor-patient relationship is consistently enhanced.
MODALITY USED TO DEMONSTRATE: In addition to a detailed desription of the home visit program, the presentation will exhibit the materials used for resident discussion and patient followup, specific advice as to the necessary steps and potential barriers in establishing a home visit program and feedback from residents and patients about their experience of home visits. The latter will be presented in either edited transcripts or audio recording of interviews.

**CARING CONTINUOUSLY: ADVANTAGES OF A LONGITUDITUDAL PRIMARY CARE CLINIC EXPERIENCE FOR MEDICAL STUDENTS.** K.P. White[1], S.C. Eisenbarth[1], E.P. Scully[1],V.H. Murthy[1]; [1]Yale University, New Haven, CT *(Tracking ID #51880)*

STATEMENT OF PROBLEM OR QUESTION: What are the advantages of a longitudinal clinic for medical students who are earning joint degrees in medicine and another field? What are the faculty, student, and administrative requirements for an effective longitudinal clinic for both medical student education and health care delivery?
OBJECTIVES OF PROGRAM/INTERVENTION: 1. To provide a unique longitudinal care clinic for the education of medical students. In our institution this includes students in dual degree tracks and those taking an additional research year, as well as fourth year students seeking a longitudinal out-patient experience in lieu of their block ambulatory primary care rotation 2. To provide health care to an urban community.
DESCRIPTION OF PROGRAM/INTERVENTION: This longitudinal clinical experience, The Wednesday Evening Clinic (WEC), is based in the Primary Care Center of Yale New Haven Hospital and draws from an urban patient population also served in the day-time by resident clinics. Students are involved in all aspects of care of their own cohort of patients from history taking and physical exam to planned management and follow up under the direct supervision of both academic and community physicians. Education is facilitated by pre-clinic conferences which focus on primary care topics presented both by student peers and physician specialists, as well as team patient management sessions. There is a consistent faculty director who is in charge of the educational process and serves as the attending for the patients.
FINDINGS TO DATE: The establishment and maintenance of a successful longitudinal clinic for medical students requires: 1.Affiliation with a primary care clinic for patient urgent care needs, nursing staff, laboratory facility and training matierals; 2. Faculty drawn from both private and academic practices; 3. Students with basic clinical experience and a long-term commitment of at least 1 year to serve as a primary care provider for a cohort of patients; 4. A consistent faculty and student coordinator.
KEY LESSONS LEARNED: The evening longitudinal clinic allows students to practice the dual management of ongoing research and clinical responsibilites in the context of pursuing a second graduate degree (Ph.D., MBA, MPH or a research year). Students learn about long-term compliance, patient education, preventive services, and co-ordination of multiple disciplines. By studying existing longitudinal primary care experiences, medical schools can develop longitudinal models best suited to their institution's education mission, goals and resources available.
MODALITY USED TO DEMONSTRATE: A review of students evaluations of the WEC and final choices for resident programs will be presented. Presenters will be Yale medical students who staff the WEC.

**INFLUENCE OF HOSPITALISTS ON PATIENT SPECTRUM AND LENGTH OF STAY ON INPATIENT TEACHING SERVICE: A PALM PILOT-BASED STUDY.** D. Elkin[1], H. Kerpen[1], J. Mattana[1], C. Tu[1]; [1]Long Island Jewish Hospital, New Hyde Park, NY *(Tracking ID #46855)*

STATEMENT OF PROBLEM OR QUESTION: The growth of hospitalist programs may impact on resident training in terms of the diagnostic entities seen by residents as well as length of hospital stay. Our program has developed 2 types of ward teams: 1) teams led by a voluntary or full-time faculty member with admissions belonging to voluntary faculty, full-time faculty or hospitalists ("Traditional Team" [TT]) and 2) teams led by a hospitalist who admits with the team as the physician of record and to whom most of the patients on the service belong ("Firm Team" [FT]). An initial concern of our residents was that having most of their patients belonging to a hospitalist might adversely skew the patient population on the FT and prolong the length of stay (LOS).
OBJECTIVES OF PROGRAM/INTERVENTION: To determine whether there is a difference in the spectrum of disease entities seen by the residents and LOS between TTs and hospitalist-led FTs.
DESCRIPTION OF PROGRAM/INTERVENTION: We conducted a prospective, randomized, double-blinded Palm Pilot-based study of 4 medical teams in a tertiary care hospital for 12 weeks. Two of the teams were TTs and 2 teams were FTs with all having the same number of admitting days (every fourth day). Admissions were assigned by a senior medical resident blinded to the study protocol. Patient names, demographic data, and up to 5 diagnostic categories (cardiovascular, oncologic, neurologic, pulmonary, gastrointestinal, endocrine, renal, infectious diseases, and hematologic were recorded by all PGY-1s onto Palm Pilots equipped with Patient KeeperTM software. Each week the data were downloaded to the main Palm Pilot unit, processed and stored in a Microsoft ExcelTM database. At the end of 12 weeks every patient's age, sex, medical diagnosis and LOS were calculated. Data were compared between the TTs and FTs using Chi Square testing and Student's unpaired t-test as indicated.
FINDINGS TO DATE: The response rate during the study was 100%. 233 TT patients were compared to 233 FT patients. Demographic characteristics were closely matched between the two groups. There were no significant differences in the proportions of patients with different disease entities between the 2 groups. Unadjusted LOS was significantly less on the FTs (12.3 ±11.4 [mean ± SD] vs. 16.7 ± 18.3, $p = 0.0023$). When adjusted for outlier cases (30 days), LOS on the FT was 10.2 ± 6.7 vs. 10.8 ± 6.3 days on the TT ($p = 0.2345$).
KEY LESSONS LEARNED: Our study suggests that the integration of hospitalists onto the resident teaching service does not distort the spectrum of diagnostic entities seen nor does it impact adverseley on LOS. Given the multiple other benefits of having a hospitalist as teaching attending as well as physician of record, this might represent a useful model which can enhance inpatient medicine residency training.
MODALITY USED TO DEMONSTRATE: We used Palm-powered technology to collect and analyze data on the inpatient population.

**BEYOND THE OSCE: COMPREHENSIVE ASSESSMENT OF PROFESSIONAL COMPETENCE.** R. Epstein[1], L. Henson[1], S. Schultz[1], A. Nofziger[1], J. Hansen[1], M.A. Courtney[1], E. Dannefer[1], N. Jospe[1], L. Connard[1], E. Hundert[1]; [1]University of Rochester, Rochester, NY *(Tracking ID #50677)*

STATEMENT OF PROBLEM OR QUESTION: Current assessment formats reliably test basic skills but may not share a common definition of professional competence and may under-emphasize the integrative, relationship and moral functions of medical practice.
OBJECTIVES OF PROGRAM/INTERVENTION: To design a developmentally-appropriate comprehensive assessment system for medical students that links relevant domains of clinical practice, context of care, and basic knowledge and skills, and assesses what students actually do in clinical settings.
DESCRIPTION OF PROGRAM/INTERVENTION: The Comprehensive Assessments (CA) are 2-week full-time requirements during the 2nd and 3rd years that include exercises that contextualize and integrate clinical behaviors and basic knowledge using standardized patient assessments linked to written exercises, peer assessments, demonstration of communication and technical skills, teamwork exercises and organized reflection. Higher-order reasoning, clinical judgement, managing ambiguity, professionalism, incorporation of basic science and social science knowledge into clinical practice, the patient-physician relationship, affective and moral aspects of practice, and cultivating habits of mind are emphasized. The CA culminates in an Individualized Learning Plan created collaboratively and followed up with the student's advisor.
FINDINGS TO DATE: Psychometric characteristics of the results indicate that the CA is both valid and reliable. Peer assessment results predict performance in SP exercises as well as knowledge. Students responded positively.
KEY LESSONS LEARNED: Comprehensive, meaningful assessment of higher-order skills characteristic of competenct practitioners is feasible, reliable and valid at the medical school level, and is well-accepted by students. Linking assessment to learning, both in structure and content, clarifies core attributes of professional competence.

**CREATING CROSS-CULTURAL VIDEO "PEARLS".** L. Fernandez[1], C. Bates[1], L. Newman[1]; [1]Beth Israel Deaconess Medical Center, Boston, MA *(Tracking ID #52028)*

STATEMENT OF PROBLEM OR QUESTION: There are few resources available to analyze the complexities of the cross-cultural medical interview. Scripted interviews with actors have several limitations: they are expensive and may not feel totally "real" to the learner.
OBJECTIVES OF PROGRAM/INTERVENTION: We wished to create a video teaching aide showing real patient-doctor encounters to help illustrate and analyze key clinical issues in the cross-cultural interview and to discuss specific interviewing skills.
DESCRIPTION OF PROGRAM/INTERVENTION: We enlisted the participation of interested faculty and primary care residents who agreed to film a patient of their choice. We suggested they select someone with whom they felt communication and/or treatment adherence was "difficult" in some way. We extensively reviewed the gathered video material and selected several 4 – 5 minute excerpts that illustrated key points, such as: 1) the importance of explanatory models of illness in medication adherence; 2) cultural issues in the diagnosis of cancer; 3) what happens when a patient's daughter is the interpreter.
FINDINGS TO DATE: We were impressed by the richness of these "average" clinical encounters. Most videos provided something useful for our cross-cultural curriculum. The most time-consuming aspect of our preparation involved the editing of the videos in order to isolate several "pearls" that used together would raise many issues that we had identified as important for our curriculum. Faculty and residents responded well to the relevance of the material, both because patients were real and because they could observe their colleagues' dilemmas.
KEY LESSONS LEARNED: Everyday encounters hold many lessons that are valuable for cross-cultural curricula. It is not difficult to capture these on video for use in teaching. Editing is time-consuming but helps provide a "distilled" set of teachable moments. Most learners were respectful of their colleagues yet able to have a meaningful discussion about interview strategies and issues. Technical quality of video is variable-microphones may be helpful. Our material costs were modest.
MODALITY USED TO DEMONSTRATE: Video Teaching Aide.

**IMSES-INTERNAL MEDICINE STAFF/HOUSESTAFF EVALUATION SYSTEM: A NEW COMPUTERIZED EVALUATION AND FEEDBACK TOOL FOR AMBULATORY HOUSESTAFF PERFORMANCE IN TEACHING PROGRAMS.** R.A. Goldsteen[1]; [1]Walter Reed Army Medical Center, Washington, DC *(Tracking ID #51294)*

STATEMENT OF PROBLEM OR QUESTION: Previous housestaff evaluation tools lacked the ability to provide timely and specific evaluation and feedback of housestaff performance. they require the lengthy completion of paper forms and do not provide evaluator feedback on scoring/ performance trends and correction for score inflation/bias.
OBJECTIVES OF PROGRAM/INTERVENTION: To provide a computerized system that fulfills the acgme, rrc, and abim requirements for ambulatory housestaff evaluaton and feedback. to provide a database of scores and comments on performance, strengths and

weaknesses of housestaff. to ultimately allow staff to improve teaching, assessment, and feedback skills/ techniques through an equitable system that decreases score inflation.
DESCRIPTION OF PROGRAM/INTERVENTION: A point-and-click web based system has been created that allows raters to enter evaluations into a database that blinds them to other eval-uator's scores. the housestaff get quarterly eval-uations both with averages that compare them to other housestaff of the same year, and to the department as a whole. the staff evaluators' printouts give them feedback on their scores, comparing them to other staff, and noting the areas they need to improve in the future.
FINDINGS TO DATE: After 6 months of use and 313 evaluations to date, the system is well liked by staff and housestaff for its ease of use, specificity of feedback, and scoring that has demonstrated a linear increase of scores by year of training across all rated perameters.
KEY LESSONS LEARNED: A computerized evaluation system has clear advantages over current systems in use in teach-ing programs. the system allows for staff to improve assessment, evaluation and feedback skills and techniques through an equitable system for housestaff performance.
MODALITY USED TO DEMONSTRATE: Powerpoint slides and/or poster.

**INTERNISTS TRAINING MEDICAL INTERNS TO PERFORM PELVIC EXAMININATIONS IN PRIMARY CARE.** C.E. Goldstein[1], C. Foldes[1], D.R. Korenstein[1]; [1]Mount Sinai School of Medicine, New York, NY *(Tracking ID #51114)*

STATEMENT OF PROBLEM OR QUESTION: Pelvic examination is an important component of the primary care of women by internists. Although medical residents are expected to perform pelvic exams on their own patients, little formal training is offered beyond medical school. Programs that do offer residents opportunities to improve pelvic exam skills usually utilize gynecology clinics and faculty, implying that pelvic examination is separate from mainstream internal medicine practice. There are few programs in which internists teach pelvic examination to medical trainees.
OBJECTIVES OF PROGRAM/INTERVENTION: To design and implement a program for medical interns to 1)augment the clinical and interpersonal skills necessary to perform a complete pelvic exam, and 2)increase their likelihood of performing pelvic exams as a part of routine primary care.
DESCRIPTION OF PROGRAM/INTERVENTION: The program has been incorporated into the ambulatory block of all PGY1 residents and consists of four weekly 3-hour patient care sessions in the internal medicine practice. Patients are referred to the sessions by their housestaff physicians. Brief orientation and review of the pelvic exam are provided during the first session. An average of two pelvic exams are performed by each trainee during each session. A 12 point skills assessment checklist is completed by the internist preceptor during the first observed pelvic exam and repeated on the final session, and is used to provide systematic real-time feedback regarding proper technique and interpersonal skills. All other pelvic exams are supervised by internist preceptors as well, with feedback after each one. Pre-training self-assessment questionnaires are completed by trainees prior to the first session, and repeated 3 months after completion of the program. The questionnaire consists of 6 questions relating to specific competencies on pelvic and breast exam, with responses on a 5-point Likert scale, (1 = strongly agree, 5 = strongly disagree). Question 1 reads, "I am able to competently perform pelvic examinations." Question 5 reads, "I am likely to perform a routine pelvic examination on my female patients."
FINDINGS TO DATE:The program has been well received by the 21 interns who have participated since July 2001. Preliminary data is based on the pre-training self-assessments of 9 participants. The median number of pelvic exams performed during medical school by participants was 6 – 10. The average response to question 1 was 3.0 and to question 5 was 2.8(both neutral). Further evaluation is ongoing.
KEY LESSONS LEARNED: 1) Medical interns welcomed the opportunity to improve their pelvic exam skills through direct supervision. 2) Prior to the program, medical interns did not feel competent in performing pelvic exams. 3) Medical interns do not appear to consider the pelvic exam part of their routine exam.

**A PROGRAM TO STIMULATE INTERNAL MEDICINE RESIDENT REPORTS.** J.C. Grable[1], D.R. Bordley[1]; [1]University of Rochester, Rochester, NY *(Tracking ID #50279)*

STATEMENT OF PROBLEM OR QUESTION: Scholarly activity integrated into Internal Medicine training programs is strongly endorsed by the ACGME general requirements. How can scholarly activity be stimulated?
OBJECTIVES OF PROGRAM/INTERVENTION: Our objective is to introduce elements into an academic residency program that would increase resident reporting of scientific work or clinical cases first at an institutional poster session then at state and national poster sessions.
DESCRIPTION OF PROGRAM/INTERVENTION: A yearly, one hour poster session started in 1997 which expanded into two sessions (2.5 hours total) in 2000. After 1998, oral presentations to a panel of judges were required. Incentives for residents to participate included: trips to local and national meetings. departmental recognition and gift certificates. Training sessions for abstract and poster preparation started in 1998. In 1999, a webpage to link residents to mentoring faculty was developed and other residency programs in Rochester were invited to participate in the local session.
FINDINGS TO DATE: The number of residents participating in the local poster session has increased each year from 1997 – 2001. The numbers of residents invited to present at the regional (NY state) and national levels has increased since 1997. At the regional level, residents invited from the local poster session were awarded first place each year from 1997 – 2000; second and third place awards were given in 2001. Based on a survey, the residents felt the institutional session was a valuable part of their training.
KEY LESSONS LEARNED: The number of resident reports of research and clinical cases can be stimulated. Elements found to be most useful are: a competitive forum, a link for residents with mentoring faculty, training sessions and incentives to participate. At our institution, resident and faculty satisfaction with this scholarly activity is high.
MODALITY USED TO DEMONSTRATE: Poster

**Resident Participation in Poster Sessions**

| Year | Institutional | Regional | National |
|---|---|---|---|
| 1997 | 2 | 2 | 1 |
| 1998 | 6 | 6 | 0 |
| 1999 | 11 | 6 | 0 |
| 2000 | 12 | 5 | 5 |
| 2001 | 23 | 8 | pending |

**TEAM LEARNING: AN EFFECTIVE NEW METHOD OF LARGE-GROUP TEACHING FOR MEDICAL EDUCATORS.** P. Haidet[1], B. Richards[2], D. Hunt[2], C. Seidel[2], V. Schneider[2], J. Coverdale[2], B. Moran[2]; [1]Houston VAMC, Houston, TX; [2]Baylor College of Medicine, Houston, TX *(Tracking ID #50947)*

STATEMENT OF PROBLEM OR QUESTION: Most large-group teaching in medical education relies on the didactic lecture method, a predominantly passive mode of teaching. Team Learning is a teaching method that incorporates a number of innovations that foster active learning, self-study, and team communication among students.
OBJECTIVES OF PROGRAM/INTERVENTION: To promote student engagement in large-group settings by incorporating Team Learning in medical education.
DESCRIPTION OF PROGRAM/INTERVENTION: Educators at Baylor have been employing principles of Team Learning in large-group settings in the preclinical, clinical, and residency curricula. Team Learning (TL) can be used for individual lectures or entire courses. In TL classrooms, students are divided into "autonomous groups" that solve problems without a formally appointed facilitator. After working in these small groups, the groups compare and defend their respective answers in a faculty-led discussion involving the entire class. This technique allows for intra-group and inter-group problem-solving without increasing the number of faculty, since all activities can take place in the lecture hall. In addition, when used as the basis for course design, TL incorporates a grading structure that directly rewards individuals and groups for advance preparation, active participation, and excellence in small-group problem-solving. Educators at Baylor have incorporated aspects of TL in diverse content areas such as evidence-based medicine, doctor-patient communication, physical diagnosis, and physiology.
FINDINGS TO DATE: Supported by the Fund for the Improvement of Post-Secondary Education (US Department of Education), we have been evaluating a variety of quantitative and qualitative outcomes of didactic lectures and Team Learning. Our data suggest that TL fosters a higher level of engagement than lectures in multiple clinical and preclinical settings. Preliminary data suggest knowledge acquisition with TL is at least as great as didactic lectures, and in some instances may be greater. Students in focus groups, however, express reservations about having to 'teach themselves' during sessions taught using Team Learning.
KEY LESSONS LEARNED: Team Learning is highly effective at fostering student engagement and advance preparation by students; however, its successful application in medical education requires careful framing of the method and encouraging students to critically reflect on their learning progress. Our next steps will be to share our experience with and introduce TL to other institutions in North America through faculty development and collaborative partnerships.
MODALITY USED TO DEMONSTRATE: Video of a TL session, demonstration of our TL resources website, and course/session materials from a variety of content areas (including a TL Critical Appraisal course) will be available.

**AN EXPERIENTIAL CURRICULUM IN PRACTICE-BASED LEARNING AND IMPROVEMENT.** E.S. Holmboe[1], M. Green[2], A. Mastrangelo[2]; [1]Yale University, Cheshire, CT; [2]Yale University, New Haven, CT *(Tracking ID #51410)*

STATEMENT OF PROBLEM OR QUESTION: Practiced-based learning and improvement (PbL&I) is one of the new outcomes-based general competencies introduced by the ACGME, and will require an understanding of principles in quality and effective self evaluation by residents. Residency programs are required to develop new curricular approaches to both teach and evaluate this new competency. This project introduces a multifaceted curricular approach to PbL&I.
OBJECTIVES OF PROGRAM/INTERVENTION: 1. Introduce residents to key principles and methods in improving the quality of care. 2. Teach residents how to properly perform medical record audits to improve quality of care. 3. Provide residents the opportunity to rigorously evaluate the quality of care in their own and their peers' clinical practice, and to develop personal action plans to improve their clinical practice.
DESCRIPTION OF PROGRAM/INTERVENTION: PGY-2 Residents participate in a 4 week curriculum in quality of care as part of their 3 month ambulatory rotation. Each resident receives a comprehensive syllabus, and each week they complete a series of readings on general principles in quality of care and specific methods used to improve quality. They also receive training in performing medical record audits. Starting in the second week, residents begin a systematic chart audit of the care of their own diabetic patients using the American Diabetes Association standards. Once they complete their own practice review, they perform a review of their peers' diabetic care. At the end of the rotation, the quality of care data is tabulated and shared with the entire resident group on the ambulatory block. Residents are also required to complete a "commitment to change" survey and a personal statement outlining how they will improve their own practice.
FINDINGS TO DATE: Eight of 20 PGY-2 residents have completed the 4 week curriculum, and this group has abstracted 62 medical records of diabetic patients. The mean Hgb A1C was 8.5%, representing ample opportunity for improvement. All 8 residents uncovered at least 2 consistent clinical deficiencies in the care of their own patients and also of their peers.

The most common deficiencies were lack of foot exams and immunizations. The median number of planned changes in their own practice on the commitment to change surveys was 3 per resident. All residents rated the self chart audit exercise as the most valuable aspect of the curriculum.
KEY LESSONS LEARNED: 1. Resident self-performed medical record audit is a powerful tool to teach reflective practice and measure PBL&I. 2. A curriculum in quality of care is both feasible and valuable. Residents will need such skills to be successful practitioners. 3. Residents can be active partners with faculty in improving the quality of care delivered in their own longitudinal clinics.
MODALITY USED TO DEMONSTRATE: See above.

**USING EXTERNAL OBJECTIVES TO IMPROVE THE CORE CURRICULUM FOR MEDICINE RESIDENTS.** S. Jain[1], M. Bharel[1]; [1]University of California, San Francisco, CA *(Tracking ID #52041)*

STATEMENT OF PROBLEM OR QUESTION: Internal medicine residency programs are charged with identifying and creating a curriculum to teach core competencies to their housestaff. With the increasing constraints on funding for residency education and faculty time, it is imperative that training programs identify the knowledge, skills, and attitudes that their residents should possess before they complete their postgraduate training. However, it can be difficult to identify these competencies, and there is great variation at what is taught at different sites.
OBJECTIVES OF PROGRAM/INTERVENTION: We were interested in using external guidelines to systematically review our core curriculum and through this process to develop educational strategies to identify omissions and redundancies in our current curriculum.
DESCRIPTION OF PROGRAM/INTERVENTION: The internal medicine residency program at the University of California, San Francisco (UCSF) has approximately 165 residents who are trained at three different clinical sites. The core curriculum is administered independently at each of the sites, often resulting in the lack of coordination between sites and rotations. In addition, focus groups conducted with residents suggested a lack of cohesion of the overall curriculum. In 1997, the Federated Council for Internal Medicine (FCIM) published a list of competencies for residency training programs to utilize when designing their curriculum. Its goal was to provide a competency-based approach for programs by identifying topics important for resident education.
FINDINGS TO DATE: This year, a group of faculty reviewed the entire curriculum at UCSF in the context of the FCIM guidelines. Our goal was to utilize these guidelines to determine which areas were covered appropriately, which areas had been inadvertently omitted, and which topics were covered more than once in different settings. Additionally, we wanted to determine the most appropriate venue for each subject. It is the expectation that all residents in our program would receive a core curriculum. We were able to identify competency deficits in our curriculum and have taken steps to remedy these inadvertant omissions.
KEY LESSONS LEARNED: Residency programs often have difficulty ensuring uniformity of curriculum across clinical sites. By utilizing a set of external curricular goals, we have attempted to provide programmatic oversight to our curriculum to ensure consistency and to identify topics that require inclusion. The list of topics generated has been sent to the directors of each component of the curriculum; each has been charged with ensuring that these topics are included in their section. Future plans involve evaluation of this new curriculum and modifications based on the feedback from our trainees. This type of review process can help other programs ensure that their trainees are receiving a cohesive and comprehensive curriculum.

**INTEGRATING PALLIATIVE CARE CONSULTATIONS INTO AN INTERNAL MEDICINE RESIDENCY TRAINING PROGRAM.** D.C. Johnson[1], J.S. Kutner[1], S.L. Brandenburg[1], P.S. Pottinger[1]; [1]University of Colorado Health Sciences Center, Denver, CO *(Tracking ID #50520)*

STATEMENT OF PROBLEM OR QUESTION: Recent studies have shown that Internal Medicine residents are uncomfortable providing end-of-life care.
OBJECTIVES OF PROGRAM/INTERVENTION: As part of a broader effort to improve palliative care training at the University of Colorado Health Sciences Center, Internal Medicine residents now perform palliative care consults as part of a required rotation in consultative medicine.
DESCRIPTION OF PROGRAM/INTERVENTION: All senior Internal Medicine residents participate in the combined consultative month. Residents complete a pre-rotation survey to identify personal comfort levels with 15 palliative care topics. Each resident is provided a notebook consisting of journal articles addressing palliative care consultation, foregoing treatment in the intensive care unit, end-of-life communication, and reimbursement for palliative care services. The notebook also includes the National Hospice and Palliative Care Organization's "Physician's Guide to Hospice Care", and internet links to palliative care resources including "Fast-Facts" - selected topics on palliative care provided through the End-of-Life Physician Education Resource Center (EPERC). Residents conduct an initial evaluation of all palliative care consult cases prior to presenting their assessment and recommendations to one of five attending physicians trained in palliative medicine. Using available multidisciplinary support services (nurses, social workers, chaplains, and pain specialists), residents coordinate with the primary team to implement appropriate care plans. Residents complete both a final course evaluation and a post-rotation comfort survey.
FINDINGS TO DATE: Since the inception of this program in July of 2001, approximately 15 third-year residents have participated in palliative care consults at the University of Colorado Hospital. A pre-assessment of residents' comfort with 15 palliative medicine topics shows that residents are least comfortable with the assessment and management of terminal delirium, assessing decision-making capacity, and the use of adjuvant analgesics. Residents are most comfortable with discussing DNR orders, conducting family conferences, and discussing advance directives. Residents report that the most positive aspect of the palliative care consultation rotation is the interaction with attending physicians, whereas the most negative aspect is too few palliative care consults.
KEY LESSONS LEARNED: Residents desire additional exposure to palliative care consultation. We need to increase resident exposure to palliative care cases by expanding the inpatient Palliative Care Consult Service. Additionally, senior residents will share their consult experiences by presenting and facilitating discussions on palliative cases at Internal Medicine Morning Report.
MODALITY USED TO DEMONSTRATE: Poster with supporting materials.

**NOVEL AND FLEXIBLE TEACHING STRATEGIES FOR THE EMERGENT/URGENT CARE SETTING.** G. Kallas[1], S. Loo[1], P. Morgan[1]; [1]Medical College of Wisconsin, Milwaukee, WI *(Tracking ID #51689)*

STATEMENT OF PROBLEM OR QUESTION: The rapid pace and high volume of patients in an emergency room/urgent care setting poses a unique challenge for structuring and tracking of resident education. In this clinical setting the workload is unpredictable, faculty may not be able to reliably complete lengthy teaching sessions and not all learners can be taught at once.
OBJECTIVES OF PROGRAM/INTERVENTION: Our goals were: 1) to develop an innovative teaching curriculum designed to be web-based. 2) to take advantage of "teachable moments" in an emergency room/urgent care setting and standardize a method for tracking which residents received what instruction.
DESCRIPTION OF PROGRAM/INTERVENTION: The curriculum included the following components: 1) Ten "core curriculum" and ten "focal" topics were identified based on previous resident exam performance and residents' self-reported educational deficiencies. 2) Core curriculum topics were taught in formal 45 minute sessions. Focal topics were structured to last five minutes, taught by faculty members during their daily supervision of residents. 3) A new method to track receipt of the curriculum by residents was designed. A board was maintained in the emergency room with names of the residents, and the faculty members were instructed to mark the focal topics in which they had given instruction and to which residents. 4) A web page was created for the Emergency Room/Urgent care curriculum with targeted links to relevant journal articles.
FINDINGS TO DATE: The program was evaluated by pre and post-rotation test scores. The curriculum was implemented in October 2001. To date, residents have shown a statistically significant improvement during the rotation (mean pre-test score 60.2 versus post-test score 74.8; p-value 0.025 by paired t-test). Informal feedback from residents indicates higher satisfaction with the rotation since the curriculum began.
KEY LESSONS LEARNED: The development of an innovative teaching structure taught by multiple faculty members within a fast-paced, unpredictable and high volume patient care setting can improve post-test scores and contribute to residents' satisfaction with their emergent/urgent care rotation.
MODALITY USED TO DEMONSTRATE: 1) Computer demonstration with links to web site. 2) Self-directed, laptop powerpoint presentation with curriculum implementation and specific examples. 3) Tri-folded storyboard with core and focal curriculum topics, resident education tracking board and pre and post-tests.

**AN UNFOLDING CASE WITH A LINKED OBJECTIVE STRUCTURED CLINICAL EXAM: A UNIQUE DIDACTIC MODEL IN GERIATRIC EDUCATION.** R. Karani[1], A. Likourezos[2], E.H. Callahan[1], D.C. Thomas[1]; [1]Mount Sinai School of Medicine, New York, NY; [2]Jewish Home and Hospital, New York, NY *(Tracking ID #52130)*

STATEMENT OF PROBLEM OR QUESTION: In 1997, the Education Committee of the American Geriatrics Society recommended the development of structured educational curricula in order to teach the principles of comprehensive geriatric care. Currently the didactic curriculum on an inpatient geriatrics unit in teaching hospitals varies according to the type of cases admitted, the attending faculty on service, the preferences of trainees and the knowledge base of the various team members.
OBJECTIVES OF PROGRAM/INTERVENTION: The purpose of this study is to design, implement and evaluate a unique, standardized educational curriculum in inpatient geriatric medicine for internal medicine house staff and medical students.
DESCRIPTION OF PROGRAM/INTERVENTION: We present a scripted case that follows an ambulatory geriatric patient from her admission to the hospital until the end of her stay, and covers various curricular objectives relevant to inpatient geriatrics. Learners include senior residents, interns and medical students. The case is administered by a geriatrics fellow in three one-hour long sessions. Following the didactic intervention, a five-station, five-interstation Objective Structured Clinical Examination (OSCE) is conducted. This provides a timed and structured opportunity to assess curriculum mastery and clinical competency. A pre- and post-intervention Likert survey is completed to assess participant's knowledge, skills and attitudes about twenty areas relevant to inpatient geriatric medicine. Each participant is evaluated and given immediate feedback after every OSCE station and interstation using a checklist format. Finally, the geriatrics fellow, attendings and participants complete a validated teaching evaluation instrument and a global curriculum assessment.
FINDINGS TO DATE: This newly developed project, implemented and standardized on our inpatient unit, has been extremely well received. Preliminary data from 20 respondents indicate that its unique instructional strategy, relevant curricular objectives as well as its real time assessment and review have been instrumental in its success.
KEY LESSONS LEARNED: A standardized curriculum using an unfolding case with a linked OSCE is an effective way to teach the principles of inpatient geriatrics to internal medicine house-staff and students on an inpatient geriatrics unit.
MODALITY USED TO DEMONSTRATE: An unfolding case with an OSCE.

**RESIDENT PHYSICAN HOME VISITS IN A RURAL UNDERSERVED POPULATION: THE UNIVERSITY OF VIRIGINA EXPERIENCE.** M.J. Kelley[1], C. Westley[1], M. Nadkarni[1]; [1]University of Virginia, Charlottesville, VA *(Tracking ID #46717)*

STATEMENT OF PROBLEM OR QUESTION: Physician home visits can be an important component of patient care and residency training, providing valuable information on patient function and environmental impact not accessible in office visits. Factors which may indicate a need for a home visit include: access/transportation problems, caregiver issues, homebound patients, cognitive/psychiatric issues and chronic/terminal care needs.
OBJECTIVES OF PROGRAM/INTERVENTION: The Home Visit Training Program, at University Medical Associates(UMA) was established to provide a valuable learning experience for internal medicine residents and improved care for their patients. Objectives included: 1) Increase residents' attention to and awareness of patients' home, financial and social situation and the impact on the patient's ( and caregivers') quality of life. 2) Increase the knowledge of community resources available to aid in care of homebound patients. 3) Increase understanding of how access issues influence realistic goal setting with patients. 4) Improve clinical practice by demonstrating broader interviewing, communication, teaching and diagnostic skills. 5) Improve the doctor-patient relationship by enhancing humanistic elements of medical care.
DESCRIPTION OF PROGRAM/INTERVENTION: Teams of 1 attending physician, 2 – 5 residents, and a nurse visited 2 – 3 continuity patients in their homes during half-day biannual sessions. Residents selected continuity patients who they were particularly interested in assessing in their home environment. A home visit orientation was provided to all participants by an educator and a nurse practitioner experienced in home visit care. At session end, the team discussed insights into patient care and the home environment' effects on patient health and function gleaned during the visits.
FINDINGS TO DATE: Residents completed pre and post visit surveys assessing their prior experience with home visits and attitudes about the value of home visits. Qualitative responses concerning value of the visit to the resident and the patient were recorded. Residents rated the value of home visits 6.8 ( std 2.1) on a 10-point Likert scale.
KEY LESSONS LEARNED: 1) The Home Visit Program was enthusiastically received by faculty and residents. In addition to the clinical training, they felt these visits led to improved patient-doctor relationships. They generally reported that the home visit program provided new insights into patients' illnesses, function, coping mechanisms, support systems as well as the multiple barriers to adherence to medical care plans. 2) The program is labor intensive to administer and coordinate and required tight coordination with clinic and ward schedules. 3) A strong "side benefit" experienced was improved bonding between residents, faculty and nurses who participated in the home visits together.
MODALITY USED TO DEMONSTRATE: overhead, poster, potentially internet visit to UVA website.

**AMBULATORY CURRICULUM TO PROMOTE SELF-DIRECTED LEARNING.** S.C. Kiely[1], P. Digiacomo[1]; [1]Allegheny General Hospital, Pittsburgh, PA *(Tracking ID #51242)*

STATEMENT OF PROBLEM OR QUESTION: Can a shift in residents expectation of the education process from other-directed to self directed, be accomplished by use of a voluntary, goal oriented curriculum?
OBJECTIVES OF PROGRAM/INTERVENTION: To develop resident skills in achieving an educational goal. To develop an environment for self-directed learning. To assess the correlation between goal acheivement and another measure of knowledge.
DESCRIPTION OF PROGRAM/INTERVENTION: An ambulatory medicine curriculum was initiated to include daily pre-clinic conferences and monthly clinical cases. Residents earn points for participation. The point goal for the year is based on the number of weeks a resident is in clinic. Internal Medicine faculty select articles and prepare discussion questions. A conference is scheduled before each clinic session. Resident's volunteer to take attendance and supervise the discussion and earns three points; other participants earn one point. Faculty are present to encourage discussion. In addition, residents can earn up to three points for correct responses to the "Case of the Month" a complex clinical vignette. A point summary sheet allows residents to assess their progress. Residents are surveyed regarding the ambulatory program annually.
FINDINGS TO DATE: In two academic years 75 individual residents participated. Residents' ability to plan for and achieve the objectivel improved from year one to two as demonstrated by growth in percent achieving the point goal (year 1:33%; year 2:69%). Residents in earlier years of training attained goal to a greater degree than more senior residents with the majority of PGY 1 residents achieving goal each year (61% and 86%). Perceptions of progress changed in the period, with surveyed residents overestimating the likelihood of attaining goal in year 1 (estimate: 43%), and underestimating it in year 2 (estimate 64%). Among reasons cited for not reaching goal, lack of time was most frequent. Revisions as a result of an annual survey refelect residents desire to shape the process. Some of these include assigning an attending to each session, increasing the point goal, a 2 point penalty for failing to preside after volunteering and inclusion of MKSAP questions. Although the numbers are small, residents who failed the ABIM exam on the first attempt were more likely not to have participated. Five of the six residents failing the ABIM exam on the first attempt during this period had never met a participation goal.
KEY LESSONS LEARNED: Programs can assist residents to develop skills necessary to promote self-directed learning by providing longitudinal reinforcement through a goal oriented curriculum. Residents can develop the skill to incorporate voluntary learning activities into their routine, but may need help in planning in order to acheive goal preformance. Residents in earlier stages of training appear to develop an appropriate approach, which is carried forward in their training. This skill set may be important for board preparation and may form the basis for life long learning.

**GENERAL INTERNAL MEDICINE (GIM) MEDICAL STUDENT SUMMER RESEARCH PROGRAM.** J.S. Kutner[1], AR. Robinson[1], L.J. Adams[1]; [1]University of Colorado Health Sciences Center, Denver, CO *(Tracking ID #48801)*

STATEMENT OF PROBLEM OR QUESTION: Medical students generally have little exposure to GIM research.
OBJECTIVES OF PROGRAM/INTERVENTION: To introduce medical students to the fundamentals of GIM research, to enable them to complete research projects in conjunction with GIM faculty members and to increase exposure to GIM careers.
DESCRIPTION OF PROGRAM/INTERVENTION: In Summer 2001, the GIM Division at UCHSC developed a medical student research program. We identified 10 faculty mentors with potential projects for 5 first-year medical students and developed a 6-week didactic curriculum and syllabus. Funding from a local foundation provided modest student stipends and the Division provided administrative and analytic support. Students met regularly with their faculty mentors and participated in 18 hours of didactic sessions addressing: structured literature reviews, critical appraisal of the literature, study and questionnaire design, institutional review board (IRB) issues, data analysis, and writing abstracts and manuscripts. Two sessions were reserved for "works-in-progress" presentations.
FINDINGS TO DATE: Didactic sessions and the overall program were highly rated by the students. Student research projects, which were all cross-sectional and questionnaire-based, addressed a variety of GIM-relevant topics, including: physician perceptions about the necessary components of the annual physical examination, medical student perceptions regarding medical errors, readiness for smoking cessation in a public hospital setting, primary care patients' views about physician inquiries regarding spirituality, and criteria that medical students feel are important in the residency selection process. All students made significant progress in developing their projects; the extent of their progress during the 6-week period depended on the developmental stage of the project at the outset and whether IRB approval had already been obtained. For example, one student, working as part of a larger study with prior IRB approval, was able to collect and analyze data. The other 4 students formulated their research proposals, developed survey instruments, and sought IRB approval. All 5 students remain involved in their projects.
KEY LESSONS LEARNED: This program demonstrated the feasibility of a student GIM research program. We plan to continue this program with these modifications: 1) require faculty mentors to have obtained prior IRB approval; and 2) encourage students and faculty mentors to select research projects that either utilize secondary databases or are sufficiently developed to enable the students to participate in the active research process (data collection and/or analysis and interpretation). Critical components of this program are: 1) faculty mentors; 2) curricular structure with planned didactic sessions; 3) administrative and analytic support); and 4) funding for student stipends.
MODALITY USED TO DEMONSTRATE: Poster.

**THE DEVELOPMENT OF A QUALITY MATRIX, GOING BEYOND THE ACGME.** M.L. Lypson[1], A.L. Hull[2], A.J. Fishleder[2], J. Ponsky[2], J.O. Woolliscroft[3]; [1]VA - Ann Arbor, University of Michigan (UM), Ann Arbor, MI; [2]Cleveland Clinic Foundation (CCF), Cleveland, OH; [3]University of Michigan (UM), Ann Arbor, MI *(Tracking ID #51639)*

STATEMENT OF PROBLEM OR QUESTION: Graduate medical education (GME) in the United States has come under increasing scrutiny from multiple stakeholders. Increased attention to duty hours, competition for candidates, faculty time constraints, reductions in payer support and societal concerns about the competencies of graduates are among the pressures on GME. In response the Accreditation Council for Graduate Medical Education (ACGME) has adopted requirements for outcomes assessment and demonstrable competencies as the future standards for program accreditation. Within this context institutions are striving to create quality performance markers that can help them monitor and assess the quality of residency programs.
OBJECTIVES OF PROGRAM/INTERVENTION: Both UM and CCF began the task of defining program performance indicators. Through our separate processes we hope to establish a quality metric that is applicable for residency programs across institutions. We will create specific measures for program evaluation that can be used longitudinally to assess improvement and across programs to establish minimum standards.
DESCRIPTION OF PROGRAM/INTERVENTION: The quality metrics at the CCF were developed through a modified nominal group process at an education leadership retreat. The UM quality attributes were gathered through a mailed survey to residency program directors.
FINDINGS TO DATE: A composite list of GME Quality Attributes fit into 4 categories: A) Entering resident attributes e.g. AOA, USMLE scores, Deans letters; B) Resident performance e.g. in-service scores, certification board scores, and performance on the 6 ACGME core competencies (patient care, medical knowledge, practice-based learning/improvement, professionalism, systems-based practice, interpersonal & communication skills); C) Program characteristics e.g. full 5 year accreditation, number of ACGME evaluation components addressed, frequency of evaluation and feedback, work hour limits, resident satisfaction and curriculum enhancment, and D) Scholarly productivity e.g. number of resident publications, scientific presentations, grants awarded and academic careers. The two institutions differed on the question of including faculty performance measures (teaching, scholarly activity) in the metric.
KEY LESSONS LEARNED: Development of a quality assessment matrix will aid in program evaluation. Although specific quality measures require further discussion and development, this exercise across institutions will increase validity of the measures, assist the institutions in improving GME and can help to inform accreditation bodies, students, government officials and others of high and low performing programs.

**ESTABLISHING AND MAINTAINING AN INTERNAL MEDICINE RESIDENT SCHOLARLY ACTIVITY PROGRAM.** B.F. Mandell[1], K.D. Saneto[1]; [1]Cleveland Clinic Foundation, Cleveland, OH *(Tracking ID #50436)*

STATEMENT OF PROBLEM OR QUESTION: A scholarly activity program (SAP) should be an integral component of internal medicine residency training. Can a rigorous program be established, maintained, and accepted by the residents?
OBJECTIVES OF PROGRAM/INTERVENTION: 1. Establish a SAP to provide residents with tools for lifelong learning. 2. Comply with the ACGME scholarly activity requirement (SAR). 3. Evaluate the program.

DESCRIPTION OF PROGRAM/INTERVENTION: Key components of our SAP include: precise delineation of requirements; dedicated time of a research director and coordinator; core curriculum with didactics (trial design, test interpretation, meta-analysis, bioHumanities, medical writing, informatics, computer graphics), journal club focused on trial design, optional clinical teaching seminars, and an elective 10-hour biomedical writing course; optional research modules; SAP manual; staff mentors and institutional support. The SARs include: participation in didactic program and journal club; completion of a pre-approved written project (not a case report); completion of a 30 – 60 minute oral presentation using computer-generated slides (staff evaluated, with feedback provided); and a 1:1 literature search session with a librarian. An annual research day includes: residents' poster presentations (2001: 42 posters) with a reception and a visiting professor lecture. Two selected research projects are presented by the residents at a medical grand rounds. Our 2001 budget of $29,025 included: resident travel to present at meetings (research mentor's department co-support residents' travel to present at meetings), printing of SAP manual, biomedical writing course, Research Day expenses, and general operating costs. The budget does not include salaries for Research Director (10%) or Coordinator (60 – 70%).
FINDINGS TO DATE: Resident publications and presentations have increased (in 2001: 4 published articles, 14 abstracts, 56 presentations at national or regional meetings). The most common written project is an original research abstract; retrospective chart reviews are the most common type of research. A survey of our graduating residents indicates acceptance of the SAP (14 of 24 PGY-3 residents felt the SAP to be "very valuable"); despite 38% of interns believing that completion of these SARs would be difficult, and only 36% having previously been involved in original research.
KEY LESSONS LEARNED: We believe the success/acceptance of our SAP are due to an established core curriculum, supportive personnel, dedicated funding (in particular for resident trips to meetings), availability of staff mentors, strong institutional resources, and meticulous tracking of residents' progress. ~50% of our residents take 1 – 2 research modules, which must be approved in advance. No relation exists between the type of project and whether residents took a research module.
MODALITY USED TO DEMONSTRATE: Poster presentation.

**NEW APPROACHES TO INTEGRATING END-OF-LIFE COMMUNICATION AND ADVANCED CARE PLANNING IN AN INNERCITY TEACHING HOSPITAL.** N. Marsh[1], L. Capps[1], R. Villanueva[1], S. Casiano[1], A. Ashford[1]; [1]Harlem Hospital, New York, NY *(Tracking ID #52431)*

STATEMENT OF PROBLEM OR QUESTION: Harlem Hospital is a teaching hospital in Central Harlem with a 90-bed inpatient medicine service. It is the only New York City public hospital with an inpatient hospice program, providing palliative care for predominantly poor African Americans with terminal disease. A spot survey of one medical ward over a 24-hour period revealed that 90% of patients admitted had serious illness, yet less than 10% had any advanced directives or discussions documented about end-of-life care. Advanced care planning had been previously relegated to an administrative function: the filling out of a check off form with little or no follow-up discussion.
OBJECTIVES OF PROGRAM/INTERVENTION: Goals: 1) to significantly improve the quality of discussions about end-of-life care between housestaff and patients, 2) to provide medical education and modeling behaviors for housestaff on culturally sensitive communication strategies, 3) to increase the number of advanced care directives, specifically health care proxys and Do Not Resuscitate orders, as well as referrals to the hospice unit.
DESCRIPTION OF PROGRAM/INTERVENTION: A multidisciplinary team of nurses, administrators, and physicians at Harlem Hospital initiated a radically changed approach with a focus on facilitating culturally competent communication with patients and families. Senior medical residents on call are responsible for identifying patients with advanced organ disease. This daily list of seriously ill patients is reviewed with the ward team, and strategies for eliciting patient's views on end-of-life choices in a more 'user friendly' way are explored. Informal feedback by a faculty general internist/hospice physician is provided to the ward attending and housestaff on a daily basis as they participate in advanced care planning conversations with patients.
FINDINGS TO DATE: Chart review done twice on a small numbers of patients, in November 2001, (at the project's inception), and in January 2002 (two months later), revealed that advanced care planning for patients increased from 20% to 80%, specific advanced directives by 50%, and referral for hospice care more than doubled.
KEY LESSONS LEARNED: By incorporating a routine system for identifying admitted patients with serious illness, and by providing housestaff with practical and culturally competent ways for communicating advanced care planning choices, the ward team was able to dramatically improve the quality of advanced care planning with patients and families within a short period. Another outcome: the hospice service, that had been underutilized, is now a busy unit providing the Harlem community with much needed palliative care services.
MODALITY USED TO DEMONSTRATE: Not applicable.

**GENERAL INTERNISTS TEACHING PATHOPHYSIOLOGY TO PRE-CLINICAL STUDENTS.** S. Mathew[1], S. Shah[2]; [1]Cook County Hospital, Berkeley, IL; [2]Rush Medical College, Chicago, IL *(Tracking ID #52319)*

STATEMENT OF PROBLEM OR QUESTION: Clinical Pathophysiology is a yearlong course offered to second year medical students at Rush Medical College. For many years, this course has been divided into sub-specialty based sections, each with its own coordinator determining curricular content. The course was comprised of hour-long lectures followed by two-hour workshops; sub-specialists led each. This format posed two major concerns for students: there was little continuity between sub-specialty sections; and, within one section, a given student may be exposed to several different workshop instructors, allowing little continuity even within one section.
OBJECTIVES OF PROGRAM/INTERVENTION: Our objective was to address the stated student concerns regarding continuity and address the effectiveness of general internists as teachers of a pre-clinical course, Pathophysiology.
DESCRIPTION OF PROGRAM/INTERVENTION: To address student concerns, during the academic year 2000 – 2001, one workshop group remained under the direction of a general internist. While the sub-specialty section coordinator still largely determined the curriculum, and all students attended a common lecture, students in this group had one workshop instructor during the majority of the year. We felt that this internist would offer continuity within one section, as well link together material between organ systems. This received favorable response from the students. We were not certain whether this response was due to the yearlong commitment, the instructor's generalist background, or the particular teaching abilities of this individual. During the academic year 2001 – 2002, we have restructured all the workshop groups. Students still attend lectures given by sub-specialists. During the Fall Quarter, six of eight workshops were led by generalists, and two were led by sub-specialists. All eight workshop facilitators made a minimum commitment of one quarter, with five individuals committing for the entire year.
FINDINGS TO DATE: During the 2000 – 2001 academic year, student response was very favorable, citing continuity and the abilities of the instructor as key. Of note, there was no difference in exam performance between generalist and sub-specialist workshop groups. The 2001 – 2002 academic year is ongoing.
KEY LESSONS LEARNED: Based on 2000 – 2001 academic year, there seems to be value in continuity of instruction. The lack of difference in exam performance between groups may also indicate that general internists may be capable of teaching pathophysiology as effectively as sub-specialists.

**A FACULTY DEVELOPMENT PROGRAM IN TEACHING AND ASSESSING PROFESSIONALISM.** A.J. Mechaber[1], A.R. Flipse[1], J.J. Braunstein[1], C. Zhang[1]; [1]University of Miami, Miami, FL *(Tracking ID #45867)*

STATEMENT OF PROBLEM OR QUESTION: Professionalism is considered an essential component of clinical competence. A concern over the "erosion" of professional standards among physicians has led to a movement to define professionalism, and promote its teaching and evaluation in medical students and physicians in training.
OBJECTIVES OF PROGRAM/INTERVENTION: The goals of our faculty development program were to enable participants to: 1) define medical professionalism and its components, 2) identify the importance of professionalism in the delivery of quality medical care, 3) demonstrate ways in which professionalism can be taught, and 4) incorporate evaluative tools to assess professionalism in medical education.
DESCRIPTION OF PROGRAM/INTERVENTION: Our program began with an interactive panel discussion entitled "The Role of Professionalism in Medical Education" led by a group of distinguished senior clinicians, followed by a series of organized strategic teaching experiences (OSTEs). These OSTEs were divided into two small group sessions. One group reviewed teaching "tools" used to teach professionalism while the other reviewed evaluative tools available to assess professionalism. The program was assessed through a formal discussion with participants at the conclusion of the seminar along with pre and post-program surveys.
FINDINGS TO DATE: Twenty basic science and clinical faculty participated. An attitudinal survey was administered pre and post-program addressing whether professionalism can be taught in medical school, whether the "teaching" of professionalism should be integrated into the curriculum, and comfort level in using evaluative tools to assess professionalism throughout the curriculum. A 5-point Likert scale was utilized and a Wilcoxon signed ranks test was applied for comparison of pre and post-program responses. A 95% response rate was obtained. At the conclusion of the program, participants more favorably perceived that professionalism can be taught in medical school ($p < .05$). They also felt more comfortable using evaluative tools to assess professionalism in their respective courses or clerkships ($p < .05$). Though not statistically significant, participants trended towards more favorably perceiving that professionalism should be integrated into the medical school curriculum.
KEY LESSONS LEARNED: Faculty development, through interactive discussions, can be influential in changing attitudes about the teaching and evaluation of medical professionalism among trainees.
MODALITY USED TO DEMONSTRATE: Panel discussion; Interactive small group discussion.

**ACADEMIC SOCIETIES: EXCELLENCE IN LEADERSHIP, MENTORING, AND COUNSELING THROUGH ORGANIZED STUDENT SUPPORT GROUPS.** A.J. Mechaber[1], J. Watts[1], S. Pitts[1], M.T. O'Connell[1]; [1]University of Miami, Miami, FL *(Tracking ID #50727)*

STATEMENT OF PROBLEM OR QUESTION: A major goal of medical education is to develop students into leaders and teach them to become professionals and lifelong learners. With this in mind, a program called "Academic Societies" was created as a support structure for uniting students and faculty, while providing an opportunity for all students to become leaders.
OBJECTIVES OF PROGRAM/INTERVENTION: As a collaborative effort between students, faculty, and administration, the program functions to supplement the curriculum by: 1) providing leadership opportunities, 2) reinforcing clinical skills, 3) building teamwork through non-academic and athletic events, 4) providing medical students with increased exposure to research and community service opportunities.
DESCRIPTION OF PROGRAM/INTERVENTION: The program divides the entire student body into 12 societies comprised of members from each of the four years. Every society has designated leaders, and each society member has a specific position with associated responsibilities. Societies also have a set of faculty who provide mentoring and counseling, guiding the society throughout the four-year curriculum. Linking students with professional colleagues establishes a relationship between them, helps to foster student career advancement, and ultimately offers a unique opportunity for longitudinal mentoring and evaluation. Each society is encouraged to develop its own identity, but all with similar goals. Societies develop programs to bridge the basic and clinical sciences, teach and practice clinical skills, plan and implement community outreach, and help students explore research interests. In addition,

societies work together to develop social programs and intramural athletic events in an effort to foster camaraderie.
FINDINGS TO DATE: Teaching clinical skills was the focus and initial phase of the program. While preliminary data indicates training sessions have been "very helpful," particularly those facilitated by senior medical students, evaluation is ongoing and in its infancy.
KEY LESSONS LEARNED: Only in its initial year, the Academic Societies have provided an infrastructure for uniting students and faculty, fostering medical professionalism, instilling pride in the institution, and reinforcing clinical skills through peer teaching. They have also helped to promote the evolution of leadership skills, facilitate medical research and community involvement, and establish personalized student/faculty relationships for mentoring, career advisement, and evaluation.

**THE VIRTUAL DERMATOLOGY CLINIC: TEACHING DERMATOLOGY IN THE URGENT CARE SETTING.** L. Miller[1], M. Cassoobhoy[1], C. Mccall[1]; [1]Emory University, Atlanta, GA *(Tracking ID #52010)*

STATEMENT OF PROBLEM OR QUESTION: Internal medicine residents do not receive adequate training in dermatologic diagnosis, yet this is an important skill for the internist, particularly in the urgent care setting. Referring patients to the dermatologist represents a lost educational experience for the internist, while real-time dermatologic consultation is impractical for both.
OBJECTIVES OF PROGRAM/INTERVENTION: Our goals in creating the virtual dermatology clinic were to 1) enhance residents' skills in diagnosing and treating skin conditions by involving a dermatologist in teaching 2) stimulate residents' interest in diagnosing and treating dermatologic diseases 3) apply state of the art technology in digital imaging to teaching in the ambulatory setting.
DESCRIPTION OF PROGRAM/INTERVENTION: We obtained a digital camera for the purpose of photographing patients with rashes, and instructed all providers in the Urgent Care Center (residents, faculty and PAs) on its use. The camera was kept in an accessible location, and providers were encouraged to photograph all patients with rashes, both common and unusual. Images were collected over the course of a month, and presented as "unknowns" to the chief of dermatology at a monthly conference. The consulting dermatologist not only identified the rashes in the photos, but also used the cases to provide a framework for approaching the patient with a dermatologic complaint.
FINDINGS TO DATE: The virtual dermatology clinic has proven to be one of the most popular and successful educational conferences in the ambulatory teaching curriculum. Attendance is among the highest for any conference, and residents as well as faculty consistently rate the "virtual" sessions as a peak learning experience. The number of photos taken per month continues to increase, as does the residents' interest in diagnosing and treating rashes. The conference has also fostered a positive collaborative relationship between the dermatology and internal medicine departments.
KEY LESSONS LEARNED: Using digital imaging in the ambulatory setting is a unique way both to teach the use of cutting edge technology, and to broaden the ambulatory educational experience. The virtual dermatology clinic provides residents with rapid and expert follow-up on cases that are diagnostic or therapeutic challenges. Learning dermatology in a case-based format, in which the residents themselves provide the cases, stimulates the learning process.
MODALITY USED TO DEMONSTRATE: A laptop computer will be used to display actual digital images of rashes that have been presented in the virtual dermatology clinic. Examples of the approach used in diagnosing these rashes will be provided. A digital camera will also be available to demonstrate techniques of digital imaging.

**USING HANDHELD COMPUTERS FOR PHYSICIAN ORDER ENTRY.** T.J. Mohr[1]; [1]Michigan State University, East Lansing, MI *(Tracking ID #50798)*

STATEMENT OF PROBLEM OR QUESTION: Can handheld computers reduce the incidence of errors found on admission orders and improve the efficiency of house staff? Computerized Physician Order Entry (CPOE) has been shown to reduce errors, but the large financial committment required to institute such a system has limited its widespread use. Handheld computers may provide a more economical alternative.
OBJECTIVES OF PROGRAM/INTERVENTION: The purpose of this pilot study is to determine the feasibility of using handheld computers to allow house staff to efficiently create admission orders that are more accurate and legible than the handwritten orders currently used.
DESCRIPTION OF PROGRAM/INTERVENTION: An order-entry program has been created using Syware's Visual CE software. This program allows users to enter admission orders following a template which utilizes a variety of drop-down boxes, check boxes, and radio buttons. The templates are derived from the standard orders approved by the hospital and are specific for type of admission (ie. general medical bed, telemetry bed, intensive care bed) as well as diagnosis (including chest pain, pneumonia, cerebrovascular attack, etc.). Standard dosages of medications are included in the program along with a complete listing of the hospital formulary. When the orders are completed, they are "beamed" to a printer and a copy is placed on the chart. Five internal medicine residents will be asked to participate in the pilot. For a 10 day period they will record the time required to complete the orders for each patient admitted. A copy of these orders will be saved for review. The residents will then be trained on the use of the handheld computer and the order entry program. They will be monitored as above for an additional 10 days. Following the study, the residents will complete a preference and satisfaction survey. The recorded times will be compiled, and the orders will be subjectively reviewed for errors, ommisions, use of non-formulary medications, and illegibility.
FINDINGS TO DATE: This pilot study is scheduled to begin in February or March of 2002.
KEY LESSONS LEARNED: Pending results of pilot.
MODALITY USED TO DEMONSTRATE:A laptop computer and several Jornada 567 handheld computers will be used to demonstrate the order entry program.

**A NEW METHOD FOR TEACHING QUALITY IMPROVEMENT IN DIABETES CARE: RESIDENTS AS PEER CHAMPIONS.** M. Muller[1], S. Kenny[1], D. Goldberger[1], F. Sapp[1], S. Seres[1], S. Yoo[1]; [1]Legacy Health System, Portland, OR *(Tracking ID #52516)*

STATEMENT OF PROBLEM OR QUESTION: Residents care for many patients with diabetes but receive little training on population-based patient care. We designed a resident-driven quality improvement project to evaluate the effectiveness of a curricular intervention including resident education and the use of a flow sheet to improve diabetes care in an underserved population and provide residents practical experience in quality improvement.
OBJECTIVES OF PROGRAM/INTERVENTION: Residents were recruited to plan and implement this curriculum and to act as peer champions throughout the project. They met with diabetes educators, key faculty and staff to determine the appropriate interventions. The resident education component included a series of noon conferences to teach ADA guidelines and use of the flow sheet. The peer champions along with other team members reviewed interim data analyses and used this information to provide ongoing education and reinforce behavior change in their colleagues. Charts were reviewed before and after the intervention to measure change in chosen indicators.
DESCRIPTION OF PROGRAM/INTERVENTION: The peer champions found the project to be an effective method to learn quality improvement theory and gain practical experience in participating in such a project. Chart review revealed statistically significant improvements ($p < 0.001$) in documentation of foot exams (39.8% vs. 63%), LDL cholesterol checks (47.4% vs. 57.6%), and referral to diabetes education (28.7% vs. 58%). A resident knowledge survey of ADA guidelines was also administered. The final data is currently being collected.
FINDINGS TO DATE: A resident-driven quality improvement project is an effective method for increasing the number of patients whose management meets ADA guidelines. This project demonstrates that residents can institute change within their clinics and participate in population-based management of patients.
KEY LESSONS LEARNED: paper submission – information not provided.

**AN EVIDENCE-BASED PHYSICAL DIAGNOSIS COURSE FOR SECOND-YEAR MEDICAL STUDENTS.** D.R. Nickol[1]; [1]University of Nebraska Medical Center, Omaha, NE *(Tracking ID #50632)*

STATEMENT OF PROBLEM OR QUESTION: Can physical diagnosis be taught within the framework of evidence-based medicine? Can pre-clinical students better understand the value of physical exam techniques and when to use them?
OBJECTIVES OF PROGRAM/INTERVENTION: 1) Introduce second-year medical students to key concepts of evidence-based medicine including test characteristics (sensitivity, specificity, etc.), predictive values, gold standards and decision rules. 2) Prepare students for their clinical rotations by arming them with physical examination skills which have proven diagnostic value. 3) Help students to understand that physical exam techniques vary in utility depending on the clinical situation (disease in question, prevalence, etc.).
DESCRIPTION OF PROGRAM/INTERVENTION: A course consistng of nine lectures with corresponding small-group sessions was designed for use in the second year. The sessions were arranged by organ system and timed to coincide with material being taught in the basic science courses (e.g. the cardiac session took place during the cardiac physiology course). Lectures and small-groups used a case-based approach to common clinical problems, and the published evidence in support of diagnosis by physical examination was discussed. Where possible, the accuracy of physical examination was compared to other diagnostic modalities (e.g. laboratory testing or radiology). Student assessment took two parts: standard multiple-choice questions included in examinations and a simulated-patient scenario requiring diagnostic decision making.
FINDINGS TO DATE: Student response to the course (now in its second year) has been extremely positive. Students textual comments indicate several perceived benefits, particularly in the area of clinical decision making. On a 5 point scale with 5 indicating "Strongly Agree", students reported that they felt the physical diagnosis sessions improved their clinical skills (3.9).
KEY LESSONS LEARNED: Second-year students responded favorably to a course in evidence-based medicine, and felt the material had clinical usefulness. It remains to be seen whether the principles taught will affect their performance on clinical rotations in their third and fourth years.
MODALITY USED TO DEMONSTRATE: Course outlines, sample lecture, small group and test materials.

**A MUSCULOSKELETAL ELECTIVE FOR INTERNAL MEDICINE RESIDENTS.** J.E. O'Rorke[1]; [1]University of Texas Health Science Center at San Antonio, San Antonio, TX *(Tracking ID #51270)*

STATEMENT OF PROBLEM OR QUESTION: General internists in practice routinely see patients with musculoskeletal complaints, but there is a paucity of curriculum covering primary care orthopedic medicine.
OBJECTIVES OF PROGRAM/INTERVENTION: My goal was to improve the confidence of our residents in their exam, diagnostic and treatment skills of non-rheumatologic musculoskeletal complaints.
DESCRIPTION OF PROGRAM/INTERVENTION: I developed an elective for internal medicine residents that utilized the orthopedic clinics at a community-based medical center. Most of the orthopedic faculty, in these clinics, had previous primary care experience. One resident per month rotates through six orthopedic clinics: spine, total joint, sports medicine, hand, foot, general orthopedics and one musculoskeletal clinic staffed by a general internist. In addition, I searched for primary data or systematic reviews, which were compiled into a syllabus for the resident. The residents are surveyed about their confidence in different areas of musculoskeletal medicine before and 6 weeks

after their experience. Each participating resident's survey is matched with the survey of a non-participating resident.
FINDINGS TO DATE: The mean results for participants, pre- and post-testing, and controls are displayed in Table 1. The scale is 10 – 100.
KEY LESSONS LEARNED: After a one-month rotation resident confidence in exam confidence and diagnosis of musculoskeletal problems significantly increased. As more data is collected it will be interesting to see if the other areas will show significant difference.
MODALITY USED TO DEMONSTRATE: Visual display to include syllabus, schedule and surveys.

**Table 1.**

| Confidence in: | Control | Pre-elective | Post-elective | P-Values |
|---|---|---|---|---|
| exam | 56.6 | 64.7 | 84.7 | .04 |
| diagnosis | 54.3 | 61.9 | 76.6 | .01 |
| treatment | 61 | 65 | 76.9 | .53 |
| arthrocentesis | 47 | 59.2 | 66.7 | .71 |
| bursa inject | 36 | 56 | 64 | .75 |
| scientific knowledge | 68.6 | 66.3 | 78.8 | .1 |

**LEARNERS' PERCEPTION OF CLINICAL TRAINING EXPERIENCE IN VETERANS AFFAIRS (VA) MEDICAL CENTERS.** S.H. Pincus[1], G.J. Holland[1], S.A. Keitz[2], D.C. Aron[3], G. Cannon[4]; [1]VA Headquarters, Washington, DC; [2]Durham VAMC, Durham, NC; [3]Cleveland VAMC, Cleveland, OH; [4]Salt Lake City VAMC, Salt Lake City, UT *(Tracking ID #52191)*

STATEMENT OF PROBLEM OR QUESTION: The Department of Veterans Affairs educates over 85,000 health care trainees per year including students, residents, and masters and doctoral students. To date, there has been no instrument to measure learners' perceptions of training and thus no way to identify specific areas of excellence or opportunities for improvement.
OBJECTIVES OF PROGRAM/INTERVENTION: The Office of Academic Affiliations in VA Headquarters, Washington DC commissioned a national survey to measure learners' perceptions of VA training experience. Specific objectives were to: 1) provide a basis for a national performance measure for VA's academic mission; 2) identify areas of excellence and for improvement; and 3) develop a scientifically valid survey tool to measure trainee perceptions in a diverse set of disciplines.
DESCRIPTION OF PROGRAM/INTERVENTION: We conducted a literature review as well as 15 focus groups at five different sites to identify key domains and measures of satisfaction appropriate for VA experience. Based on these findings, the survey instrument was developed. A pilot study (n = 1,092 completed surveys from 22 sites) showed that the questionnaire was valid and reliable for measuring perceptions of clinical trainees. Overall satisfaction was determined by asking each learner to give a numeric value to their VA clinical training experience based on a scale of 0 to 100 where 70 is passing. Learners were also asked specific questions within four domains: clinical faculty/preceptors, learning, working, and physical environments. We selected the month of March 2001 as the study period and attempted to register all learners at all facilities during that period.
FINDINGS TO DATE: 9,637 trainees were registered. Of these, 5,833 trainees (61%) returned questionnaires. Nationwide, 83% of learners stated their VA training was equal to or better than their non-VA training. The percent of trainees reporting that they were satisfied/very satisfied with each domain was: 1) clinical faculty/preceptors 90%/58%; 2) learning environment 88%/48%; 3) working environment 81%/38%; and 4) physical environment 82%/39%. Eighty-nine per cent would recommend VA training to others, and given the choice, 85% would select VA training again. Particular areas of high satisfaction were degree of supervision and autonomy.
KEY LESSONS LEARNED: The number and diversity of health care trainees within the VA system affords opportunity to measure and study learners' perceptions. Rigorous survey development yielded a tool applicable to a diverse set of trainees. Overall satisfaction with the VA training experience is high. Over time, the annual system wide implementation of this survey will provide discipline specific and facility level information for quality improvement.

**ESTABLISHMENT OF A PROCEDURE CLINIC IN A PRIMARY CARE GROUP PRACTICE.** T.H. Poterucha[1], L.E. Ward[1], P.L. Claus[1], T.G. Mcleod[1], M.R. Thomas[1]; [1]Mayo Clinic, Rochester, MN *(Tracking ID #51399)*

STATEMENT OF PROBLEM OR QUESTION: Many academic internists do not perform or precept common adult ambulatory procedures. (Wickstrom G, et al., JGIM June 2000;15:353 – 360) Consequently, the residents they train are ill-prepared to handle basic office surgical skills essential to a busy primary care practice.
OBJECTIVES OF PROGRAM/INTERVENTION: The Division of Community Internal Medicine at Mayo Clinic created a Procedure Clinic to better acquaint its faculty and residents in office-based surgical procedures. Achievement of the following objectives was anticipated: 1) To increase faculty experience in the performance of basic ambulatory office procedures. 2) To subsequently enhance direct resident exposure to these procedures and their indications. 3) To provide timely care of patient problems without additional subspecialty appointments and costs.
DESCRIPTION OF PROGRAM/INTERVENTION: Faculty members experienced in aspiration and injection of joints, incision and drainage of abscesses, ingrown nail resection, cryotherapy, skin procedures (i.e., punch biopsy), thrombosed hemorrhoid management, and anoscopy designated daily time slots to handle requests from other primary care staff and residents for these specific procedures. Once contacted, the "proceduralist" either: 1) performed the procedure themselves (usually the same day the patient was seen), with or without the referring physician observing; or 2) taught and observed the requesting physician in performing the task.
FINDINGS TO DATE: Since its implementation in 1997, over 1000 ambulatory procedures/year have been performed. Feedback from staff, residents and patients has been overwhelmingly positive and objectives have been realized. Both faculty and resident awareness and skill in performing office-based procedures have been enhanced. This success has, in turn, led to the development of programs (i.e., cadaver lab-based) designed to further expose residents to essential office procedures.
KEY LESSONS LEARNED: The establishment of a procedure clinic in a primary care group practice can become a successful endeavor from many standpoints. Positive outcomes for patients have included the convenience of having required procedures performed the same day they see their physician, thus avoiding additional subspecialty appointments and costs. Positive outcomes for learners (faculty, residents, students) have included the opportunity to learn, perform and subsequently teach office-based surgical skills essential to an internist's primary care practice.

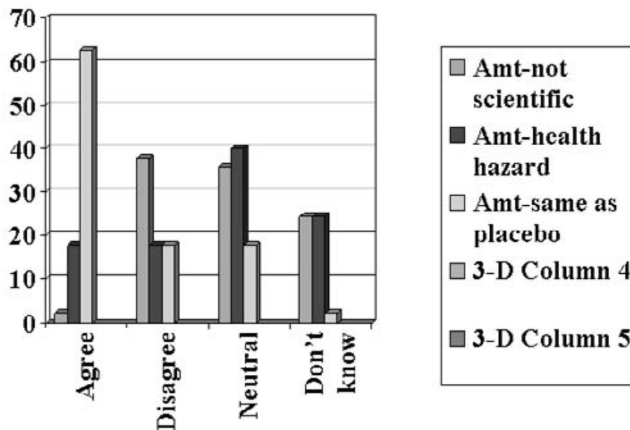
**AN ON-LINE, FULL-TEXT INTERACTIVE BIBLIOGRAPHY ON WOMEN'S HEALTH AND GENDER-BASED MEDICINE.** H.G. Pursley[1], D.S. Kwolek[1], M. Crider[1], D. Haynes[1], D. Hosinski[1], C. Norman[1]; [1]University of Kentucky, Lexington, KY *(Tracking ID #51824)*

STATEMENT OF PROBLEM OR QUESTION: The American Board of Internal Medicine (ABIM) has stated that Women's health competencies should be included in residency curricula; thus, access is needed to literature on women's health and gender-based medicine. Photocopying articles in the library, however, is labor-intensive and time consuming. Thus, our goal was to link an on-line bibliography to our library's on-line journals for the use of faculty, resident, and student learners.
OBJECTIVES OF PROGRAM/INTERVENTION: 1. To develop a comprehensive on-line women's health literature review. 2. To utilize EndNote as a bibliography tool which could become web-based. 3. To enlist volunteers to review abstracts for clinical relevance. 4. To link the web-based bibliography with on-line library resources. 5. To enable the transport of this bibliography to other institutions.
DESCRIPTION OF PROGRAM/INTERVENTION: This project is funded by the Fund for the Improvement of Post-Secondary Education (FIPSE), U.S. Department of Education. To achieve educational reform and integrate women's health into our undergraduate and graduate curricula, we determined that a bibliography of key articles was needed. Core competencies in women's health for inclusion on our list were defined by the ABIM and the National Academy of Women's Health Medical Education. Student researchers assisted by performing in depth literature reviews on the Internal Medicine topics, as well as on the basic science and clinical topics covered in the undergraduate curriculum. EndNote was used as a bibliography tool to organize the literature into subjects. We worked with our librarians to determine which journals are available on line, and to link information on women's health with on-line library resources. We plan to share this method so that other institutions can duplicate the process, and provide their learners with the same resource.
FINDINGS TO DATE: The on-line bibliography is well received by faculty and may be used in curriculum and faculty development. The bibliography is easy to access, and to look up full text articles.
KEY LESSONS LEARNED: 1. Integration of women's health at the graduate and undergraduate curriculum level is enhanced when resources are readily available on-line. 2. EndNote is an effective modality to organize references, which can then be linked to on-line journals.
MODALITY USED TO DEMONSTRATE: A laptop computer will demonstrate the use of EndNote, view the bibliography, and access articles. A poster and brochures explaining the process will enable participants to access this bibliography and link it with the on-line journals available at their respective institutions.

**ALTERNATIVE MEDICAL THERAPIES (AMT)- IS THERE A NEED TO EDUCATE OUR RESIDENTS?** P. Radhakrishnan[1], K. Moorthi[1]; [1]Saint Francis Hospital, Evanston, IL *(Tracking ID #50274)*

STATEMENT OF PROBLEM OR QUESTION: While AMT are being increasingly used by the American public, the medical curriculum fails to address this topic.
OBJECTIVES OF PROGRAM/INTERVENTION: To determine the medical residents' opinions and knowledge of the common forms of AMT.
DESCRIPTION OF PROGRAM/INTERVENTION: A 2-part Questionnaire was administered to residents at the Saint Francis Hospital, Evanston. Part 1 included demographics and questions on attitudes and beliefs about AMT. Part 2 asked questions on the principles and side-effects of AMT.
FINDINGS TO DATE: Of the 45 residents who participated in the study, 27 (60%) were male, mean age was 29.33± 5.16 yrs). Only 1 resident reported formal training in AMT; 31 (69%) reported that they had been exposed to AMT through the media or patient interaction. 17.8% thought that AMT were a public health hazard, 62.2% felt AMT had only a placebo effect, 37.8% believed that AMT had scientific basis and 88.9% strongly believed that AMT practioners should be subject to licensing. Most (84.4%) of the residents believed that they did not have sufficient exposure to AMTs, and 60% agreed that the curriculum should include AMT. Majority (71.1%), seldom asked about the use of AMT's in the drug history. The performance on the didactic part was poor, the vast majority (>75%) were unaware of the principles, and side effects of AMT.
KEY LESSONS LEARNED: Resident awareness of AMT, a modality widely used by the public, is dismal, highlighting the need for including AMT in the medical curriculum. There is a need to educate residents on the various forms of AMT, the principles involved, side-effects of herbal medications and the drug interactions between traditional and alternative medications.

MODALITY USED TO DEMONSTRATE: The 2 part survey questionnaire will be discussed and offered to those interested.




**CREATING COMMUNITY-RESPONSIVE PHYSICIANS – A SERVICE-LEARNING APPROACH.** T. Reittinger[1], M. Schwabbauer[1]; [1]University of Iowa, Iowa City, IA *(Tracking ID #51735)*

STATEMENT OF PROBLEM OR QUESTION: Physicians are increasingly being held accountable for the health of the community. However, current medical education often does not address the skills and knowledge necessary to do this. A community-responsive curriculum to address community needs, awareness of community resources, and exposure to underserved populations may lead to overall improved community health.
OBJECTIVES OF PROGRAM/INTERVENTION: 1. Equip students with knowledge and skills needed to thrive as primary care physicians in underserved areas. 2. Enhance awareness of community resources available to underserved populations. 3. Utilize service-learning as a tool to improve medical education and community health.
DESCRIPTION OF PROGRAM/INTERVENTION: Fifty first-year medical students participated in Community Health Outreach, a two-year elective class designed to expose students to underserved populations, including: the homeless, mentally ill, elderly, domestic violence victims, and individuals with disabilities. First-year students met in small groups with faculty and fourth-year student facilitators and were exposed to a different target population every two weeks. During the first week of each two-week block, community service organizations discussed the services they provide to their clients, how physicians can refer patients, and key facts about the target population they serve. Activities during these sessions included role-playing, panel discussions, and case-based learning. The second week of each block involved a site visit to the community organization for direct interaction with clients. Activities included practice interviewing, question and answer sessions with clients about enhancing the patient-physician relationship, and brief service-learning activities. Students also worked in groups and individually to implement educational projects designed to improve the health of a target population based on community needs assessment.
FINDINGS TO DATE: Response from both students and community organizations has been positive. Student comments revealed that they gained awareness of service organizations available in their community, as well as an appreciation of the social context of their future patients. Students felt the service-learning activities provided early patient interaction and exposure to the community, preparing them to care for patients from diverse backgrounds. Community organizations felt the educational projects increased their clients' awareness of health-related topics as well as their overall acceptance of academic medical centers.
KEY LESSONS LEARNED: Medical students are eager to participate in service-learning activities to improve their awareness of community resources and to interact with patients from underserved populations. A community-responsive curriculum can create meaningful partnerships in which communities and academic centers work together to improve community health.

**THE WIT EDUCATIONAL INITIATIVE: EVALUATION OF A PROGRAM USING THE DRAMATIC ARTS IN MEDICAL EDUCATION.** K.E. Rosenfeld[1], M.J. Steckart[1], K.A. Lorenz[1]; [1]VAGLHS, Los Angeles, Los Angeles, CA *(Tracking ID #52417)*

STATEMENT OF PROBLEM OR QUESTION: Caring for dying persons requires humanistic skills, many of which are not easily amenable to traditional educational methods.
OBJECTIVES OF PROGRAM/INTERVENTION: 1. To utilize drama to train medical students, residents, and staff providers in the humanistic elements of end-of-life care. 2. To evaluate the impact of a national program utilizing drama to teach end-of-life care.
DESCRIPTION OF PROGRAM/INTERVENTION: The Wit Educational Initiative was a two-year project that facilitated on-site readings of the Pulitzer Prize-winning play "Wit" at 31 medical centers in the U.S. and Canada. "Wit" narrates the death of a patient from metastatic ovarian cancer and describes the protagonist's experience with medical care from diagnosis to death. The Initiative invited medical students, housestaff, and other providers to attend the play followed by structured discussions of the play's themes. In addition to a post-performance survey at all sites, four focus groups (of MS1 – 2, MS3 – 4, intern/resident, and faculty) were conducted at each of three sites to elicit more in-depth perspectives from attendees. Finally, we conducted a qualitative history of the Initiative, entailing interviews with the project's funding agency, key project members, and key participants at selected sites, as well as reviews of media coverage.
FINDINGS TO DATE: Survey results were returned for 26 of the 31 sites; 51 percent of respondents (1238/2439) were medical student or resident trainees. Eighty-eight percent of trainees were emotionally moved "a great deal" or "pretty much" by the performance, (mean response 4.43; 1 = "not at all", 5 = "a great deal") and 92 percent reported that the play portrayed the emotions of dying patients in an "entirely real" or "very real" manner (mean response 4.38, 1 = "not at all real", 5 = "entirely real"). Eighty percent of trainees who actively provided patient care reported that the program was "very relevant" or "extremely relevant" to the care they provide (mean response 4.16; 1 = "not at all relevant", 5 = "extremely relevant"). The majority of trainees preferred the program to didactic lectures (88%), journal article readings (89%), and bedside rounds (69%). Focus groups identified themes related to both the patient's experience of illness and provider behaviors related to end-of-life care, with themes differing based on level of training. The qualitative history identified key features of the Initiative that contributed to its national success.
KEY LESSONS LEARNED: The dramatic arts are among the most effective methods for teaching humanistic aspects of end-of-life care. Trainees are able to extrapolate from the dramatic experience to actual care they provide. A national initiative using drama to teach end-of-life care was well-received and garnered national media attention.
MODALITY USED TO DEMONSTRATE: Program and media video clips, slides.

**MEET THE CABOTS-A STANDARDIZED FAMILY FOR TEACHING COMMUNINCATION SKILLS.** A. Rubin[1], C. Nicholas[1]; [1]University of VermontNone Given, Burlington, VT *(Tracking ID #51571)*

STATEMENT OF PROBLEM OR QUESTION: To develop a competency based, family centered communication skills course for first year medical students.
OBJECTIVES OF PROGRAM/INTERVENTION: We wanted our students 1) to know the anatomy and physiology of our core skill. 2) to understand the concepts of family centered care. 3) to practice what they learn with standardized and real patients.
DESCRIPTION OF PROGRAM/INTERVENTION: In five three hour sessions, groups of eight students, led by a faculty facilitator and student co-facilitator, met first with a standardized patient, then a hospitalized patient. Each standardized patient represented a Cabot family member and presented one of the Bayer E4 challenges-engagement, empathy, education, enlistment. The SP was interviewed in a start-stop, rolling format. The students then interviewed hospital patients. The final session introduced a new family member for an individual clinical practice exercise.
FINDINGS TO DATE: All students achieved competence on a checklist drived from the E4 skills. This was our highest rat4ed interview course so far.
KEY LESSONS LEARNED: A standardized family can be used to teach basic communications skills. The family aspect added the interest and complexity of family dynamics as well as the challenges of truth telling and confidentiality.

**ACCOMPLISHING CURRICULAR INNOVATION: UTILIZING RESIDENT RESOURCES FOR EDUCATIONAL RESEARCH.** A. Levitan[1], L. Belsky[1], C. Keonig[1], P. O'Brien[1], M. Youtsey[1], G.W. Rutecki[1]; [1]Evanston Northwestern Healthcare, Evanston, IL *(Tracking ID #52552)*

STATEMENT OF PROBLEM OR QUESTION: The content of Internal Medicine (IM) residency training has changed considerably in a single generation. Contemporary curricula include women's healthcare, modules in professionalism and sports medicine as well as other areas such as substance abuse unknown to IM residencies 15 years ago. For some programs, however, resources and staff limitations compromise necessary curricular evolution. Faculty - mentored, resident-driven enterprises in educational research could result in novel curricula and prepare potential academic general internists-in-training for future educational initiatives.
OBJECTIVES OF PROGRAM/INTERVENTION: During the first longitudinal of the PGY-2 year, some residents chose curriculum development as a research project. They were prepared by exposure to formal curricular preparation from needs assessment through evaluation and mentored (G.R.).
DESCRIPTION OF PROGRAM/INTERVENTION: Curricula in women's healthcare (AL), professionalism (POB, MY) sports medicine (LB, CK) were resident-driven. The women's healthcare rotation is off-site, has increased procedures (pelvics, colposcopy), ethnic sensitivity (the Latino population served), and facility in domestic violence screening. PO'B, who has a literary background, piloted a Great Books seminar to teach professionalism. Modules in impaired physician encounters and the Humanities of managed care are being utilized and include literary sources (The Tennis Partner). MY pioneered an IRB module also utilized for professionalism or Humanities education. LB (background in physical therapy and ten years with the Joffrey ballet) and CK have implemented sports medicine modules with an elective in performing arts medicine.
FINDINGS TO DATE: Residents with specific areas of interest can use curriculum development to begin careers in educational research and further their academic general medicine preparation. It also appears that a specific expertise (ballet or literature, for example) contributes valuable insight into curriculum development. Specific modules developed to date will be utilized by future trainees to cultivate their interest in these areas and stimulate ongoing educational initiatives.
KEY LESSONS LEARNED: (paper submission - none provided by author).

**A MULTICOMPONENT MULTIMEDIA CURRICULUM IN GYNECOLOGY FOR INTERNAL MEDICINE RESIDENTS.** J. Ryden[1], N.H. Fiebach[2], M.Z. Fiebach[3], J. Mccauley[1]; [1]Johns Hopkins Community Physicians, Baltimore, MD; [2]Johns Hopkins Bayview Medical Center, Baltimore, MD; [3]BREC Consulting, Baltimore, MD *(Tracking ID #51762)*

STATEMENT OF PROBLEM OR QUESTION: Since gynecology is a specialty outside of internal medicine, yet includes important knowledge and skills necessary for the practice of outpatient internal medicine, we developed a formal curriculum in office gynecology for our general internal medicine residency program.
OBJECTIVES OF PROGRAM/INTERVENTION: We sought to develop a curriculm that would: 1) Include both didactic and clinical experiences and be specifically tailored to meet the needs of those planning a career in general internal medicine; and 2) Be self-sustaining given our need for economy of effort.

DESCRIPTION OF PROGRAM/INTERVENTION: A team of 5 faculty members (2 gynecologists and 3 internists) assembled in 1994–95 to design a gynecology curriculum for the general internal medicine (primary care) residency program. The resulting month-long rotation consists of: a written syllabus with practical summaries of 12 subject areas in gynecology and women's health; approximately 10 hours of seminars (that were videotaped for subsequent use); and, participation in three sessions (half-days) per week in the gynecology faculty practices at community sites. A 20-question knowledge-based multiple-choice test is completed by residents at the beginning and completion of the rotation to help evaluate the effectiveness of the curriculum.
FINDINGS TO DATE: Please see Table below.
KEY LESSONS LEARNED: 1) The collaborative effort of the gynecologists and general internists in developing the curriculum likely contributed to ensuring that the resulting educational product was accurate yet practical and specifically tailored to the needs of the intended learners. 2) Such a model of collaboration by specialists and general internists may be useful in the development of curricula in other, non-internal medicine specialties. 3) Videotaping seminars allows for both economy of faculty effort and flexibility in timing, such that the self-directed learning can be synchronous with the rotation.
MODALITY USED TO DEMONSTRATE: Curriculum syllabus, videotapes.

**Data from The Pre- and Post-Tests for The Past 4 Years (P Values Are From Paired t-Tests)**

| | N | Pre-test Mean | Post-test Mean | P |
|---|---|---|---|---|
| 1997–1998 | 9 | 13.3 | 16.6 | .01 |
| 1998–1999 | 9 | 13.0 | 16.2 | .01 |
| 1999–2000 | 4 | 12.9 | 16.1 | .01 |
| 2000–2001 | 7 | 13.4 | 15.1 | .01 |

**IMPROVEMENT IN LDL CHOLESTEROL LEVELS AS PART OF A DIABETES CARE IMPROVEMENT INITIATIVE.** M.M. Schulte[1], P.S. Mehler[1]; [1]Denver Health, University of Colorado, Denver, CO *(Tracking ID #53208)*

STATEMENT OF PROBLEM OR QUESTION: Lipid control in diabetes, is suboptimal despite the fact that atherosclerotic heart disease is the main cause of mortality in type 2 diabetes mellitus. The goal of the initiative was to improve diabetes care for patients at a general internal medicine clinic within a larger urban care system. Could a formal registry for diabetic patients improve their care?
OBJECTIVES OF PROGRAM/INTERVENTION: As part of a Bureau of Primary Care Initiative, the Eastside Internal Medicine Clinic, in Denver, CO began an effort to improve care for all diabetic patients at this primary care site. The Chronic Care Model was used as the guiding plan for initiating changes. Multiple efforts at change in all the areas of the model were undertaken.
DESCRIPTION OF PROGRAM/INTERVENTION: The initiative began in January of 1999. Several change efforts were made in multiple areas of the model including, case management of poorly controlled diabetic patients, special diabetes emphasis clinic day and the development of a registry for diabetics. Registry development was an evolving and dynamic process. It contained computerized data on each diabetic patient at the site including: demographics, A1c data, lipid levels, urinalysis data and BP information on each patient. In mid 2000, the provider staff at the clinic chose to focus on improving the LDL testing rate. While the providers agreed to do this there actually was no specific new intervention. What occurred was the capturing of all LDL data on patients and the provision of timely provider-specific feedback with benchmark data from the entire clinical provider group. Registry data continued to be distributed to individual providers quarterly with provider-specific information and to all the staff monthly with cumulative clinic data. Other initiative efforts continued, including case management and the special emphasis clinic, as mentioned above.
FINDINGS TO DATE: Given the changing nature of the registry, it was not until 1/01 that the specific LDL data shown in the table was consistently available (table).
KEY LESSONS LEARNED: While multiple interventions were occurring simultaneously at the site of the diabetes initiative, the data on LDL cholesterol shows a clear trend of a decreasing average LDL, with a rise in the percentage of patients with the desired LDL < 100. It is impossible to pinpoint whether a specific intervention, such as the registry and the regular feedback from it, is responsible for the improvements, the overall positive outcome is significant, and may support additional efforts at provider specific feedback. Our results point to improved adherence to guidelines for LDL rather than simply more testing.

| Date | Total # Pts in Registry | % Pts with LDL/Chol Test in Prior 13 Months | % Pts with LDL <100 | % Pts with LDL 100–129 | % Pts with LDL LDL > 130 | Average LDL |
|---|---|---|---|---|---|---|
| 1/01 | 710 | 68.9 | 41.1 | 34.6 | 24.3 | 109.4 |
| 3/01 | 753 | 65.5 | 44.8 | 32.5 | 22.7 | 106.8 |
| 4/01 | 756 | 66.1 | 46.2 | 31.4 | 22.4 | 105.9 |
| 6/01 | 750 | 68.5 | 49.6 | 29.4 | 21.0 | 104.0 |
| 8/01 | 767 | 68.1 | 51.9 | 28.2 | 19.9 | 102.5 |
| 10/01 | 800 | 67.1 | 52.9 | 28.7 | 18.4 | 101.3 |

**THE INTERNAL MEDICINE SUBINTERNSHIP: A CURRICULUM NEEDS ASSESSMENT.** R. Sidlow[1], A.J. Mechaber[2], S. Reddy[3], M. Fagan[4], P.R. Marantz[1]; [1]Albert Einstein College of Medicine, Bronx, NY; [2]University of Miami, Miami, FL; [3]University of Chicago, Chicago, IL; [4]Brown University, Providence, RI *(Tracking ID #50233)*

STATEMENT OF PROBLEM OR QUESTION: Despite the broad acceptance of the medicine subinternship by the undergraduate medical education community, only a small fraction of subinternship programs provide students with explicit learning objectives. We have sought to develop a new model curriculum for the internal medicine subinternship which would help medical schools meet the challenge of producing graduates who are well trained in inpatient clinical competencies.
OBJECTIVES OF PROGRAM/INTERVENTION: To design a curriculum for the medical subinternship, it is necessary to know the views of the different educational stakeholders who interact with students on this rotation — namely subinternship directors, residency program directors, and internal medicine housestaff. Therefore, we performed a survey of these three representative groups in order to identify and prioritize the competencies that should be learned during the subinternship rotation.
DESCRIPTION OF PROGRAM/INTERVENTION: An internet-based questionnaire was administered to the memberships of the Clerkship Directors in Internal Medicine (CDIM) and the Association of Program Directors in Internal Medicine (APDIM), and a sample of PGY-1 medicine housestaff at four geographically distinct training hospitals. The survey asked respondents to rate 20 communication and information management skills, 27 inpatient clinical management scenarios, and 8 procedures according to their degree of importance as subintern learning objectives (on a rating scale of 1 to 5).
FINDINGS TO DATE: Responses were received from 89 (60%) of 150 housestaff members, 60 (24%) of 254 program directors, and 56 (45%) of 125 subinternship directors. Integrative skills receiving the highest mean importance scores were case presentation (4.85), longitudinal tracking of patient data (4.65), coordination of care with other health care workers (4.58), and prioritization of "scut" and sign out lists (4.55). Among the highest rated inpatient clinical management scenarios were acute respiratory distress (4.79), acute chest pain (4.78), altered mental status (4.56), gastrointestinal bleeding (4.5), and inpatient fever (4.46). The only procedures receiving high importance scores were venipuncture (4.27) and arterial blood gas sampling (4.1). There was good overall agreement among the three groups of respondents regarding the importance of the various items.
KEY LESSONS LEARNED: By identifying and prioritizing the learning objectives for the internal medicine subinternship, this study provides a starting point for the development of a structured curriculum for this fourth-year medical student rotation. Further efforts toward the development of effective teaching tools and evaluation methods are needed.

**A NEW INSTRUMENT FOR EVALUATING CLINICAL WORK ROUNDS.** B. Tagui[1], G. Switzer[1], B. Hanusa[1], D.M. Elnicki[1], R. Granieri[1]; [1]University of Pittsburgh, Pittsburgh, PA *(Tracking ID #51623)*

STATEMENT OF PROBLEM OR QUESTION: Clinical work rounds are an integral part of residency, yet little is known about how trainees balance the service and educational aspects of these rounds.
OBJECTIVES OF PROGRAM/INTERVENTION: Our aim is to create and measure the psychometric properties of a survey instrument which assesses faculty and house officer perceptions about the ideal and actual conduct of work rounds.
DESCRIPTION OF PROGRAM/INTERVENTION: Based on past literature, we developed a 34-item survey that was distributed to 277 Internal Medicine faculty and residents at the University of Pittsburgh. We divided the items into 4 domains of work round goals: leadership/organization, teaching/learning, data collection, and patient care. Respondents were asked to rate items on a 5 point Likert scale for ideal and actual conduct (should/does occur 1 = none of the time, 5 = all of the time). We used factor analysis and chronbach's alpha to determine factor validity and reliability.
FINDINGS TO DATE: Our response rate was 55%: 48% (52) for faculty, 60% (101) for residents. Our patient care items did not fit a single factor solution. Based on logical reasoning and use of Pearson's correlations, eigenvalues and scree plots, we found that 5 out of 6 items could be grouped into teaching/learning. We used similar methods to find 2 domains within our leadership/organization items, one of which retained the original name. The second domain, which concerned the type of patients seen during rounds, was renamed rounding patterns. We renamed our data collection items as data collection/patient care. Our 4 modified domains each had a single factor solution and the following alpha values for ideal(i) and actual(a): teaching/learning (i = .84, a = .88), data collection/patient care (i = .80, a = .85), rounding patterns (i = .75, a = .81), leadership/organization (i = .49, a = .66). Only 3 items did not fit into the 4 domain structure. These items concerned card flipping instead of formal rounding, setting rounding expectations at the beginning of the month and writing orders during rounds.
KEY LESSONS LEARNED: All 4 of the restructured domains demonstrated good factor validity, and 3 of the 4 domains demonstrated strong internal consistency. The low alphas for leadership/organization may be due to the small number of items in the domain. Our next step is to generate additional items for this domain. After confirming that the survey is generalizable at other institutions, we plan to use it to obtain consensus regarding ideal work rounds and to identify areas in each program that do not meet standards. Our ultimate goal is to use the work rounds experience to enhance resident skill in efficiently balancing responsibilities of service and education.
MODALITY USED TO DEMONSTRATE: We will demonstrate our innovation via power point presentation and hard copy of the survey.

**THE INTEGRATION OF CULTURE AND BEHAVIOR IN AN UNDERGRADUATE MEDICAL CURRICULUM: THE NEW UCSF ESSENTIALS CORE.** M. Tervalon[1], N. Adler[2], J.M. Satterfield[2]; [1]Oakland Children's Hospital, San Francisco, CA; [2]University of California, San Francisco, CA *(Tracking ID #51643)*

STATEMENT OF PROBLEM OR QUESTION: (1) Given the changing health care needs of a diverse and aging population, future physicians need to become more skilled in facilitating health-related behavior change. (2) As the ethnic and cultural diversity of our society increases, training culturally competent physicians becomes more essential. (3) The rapid pace of medical advances and the need for more interdisciplinary disease management models necessitates a shift in the problem-solving and collaborative style of future physicians.
OBJECTIVES OF PROGRAM/INTERVENTION: Our goals were: 1) Identify the building blocks of cultural and behavioral science theory and research essential to the education of any

medical student, 2) Develop a two year longitudinal plan linking social and behavioral science training with the basic and clinical sciences, 3) Design and implement culture and behavioral course materials that encourage integrative and collaborative active learning and promotes respectful and compassionate patient care.
DESCRIPTION OF PROGRAM/INTERVENTION: The Essentials Core spans the first 20 months of medical school and includes 9 interdisciplinary blocks organized around biological themes such as organ systems, cancer, brain and behavior, etc. Class time has been shortened to a maximum of four hours per day and a new emphasis has been placed on learner-centered learning and technology-based instruction. Newly developed culture and behavior course materials have been integrated throughout all of the blocks using web-based course materials, didactic lectures, small group experiential sessions, integrative clinical cases, independent learning modules, "teachable moments," and significant formal and informal multidisciplinary faculty development.
FINDINGS TO DATE: With the first year of the Essential Core well underway, student evaluations regarding culture and behavior content have been uniformly positive. Although integrative lectures have been difficult at times, small group discussions and especially integrative cases have best achieved our objectives. Faculty and students alike have been dissatisfied with the need to use traditional exam question formats to evaluate student performance.
KEY LESSONS LEARNED: (1) Students are highly receptive to the inclusion of more culture and behavioral sciences in the medical curriculum and can readily grasp its clinical and societal significance. (2) Significant, collaborative curriculum development time is required for multidisciplinary faculty to do meaningful and integrative teaching. (3) Traditional examination methods do not reflect our objective to create active learners and cannot adequately assess difficult constructs such as "cultural competence."

**CENTERING THE LEARNER: USING RESIDENT-GENERATED CLINICAL QUESTIONS TO ENHANCE AMBULATORY LEARNING.** S.G. Thompson[1], J. Osheroff[2], K.M. Fosnocht[3]; [1]University of Pennsylvania, Drexel Hill, PA; [2]Praxis.MD, New York, NY; [3]University of Pennsylvania, Philadelphia, PA *(Tracking ID #50635)*

STATEMENT OF PROBLEM OR QUESTION: Primary care internal medicine trainees can gain valuable knowledge and skills working in the outpatient setting with medical and surgical subspecialists. Feedback from our residents indicated that subspecialist preceptors are not always attuned to the residents' learning needs and that the trainee can become a passive learner in a subspecialty practice.
OBJECTIVES OF PROGRAM/INTERVENTION: 1) To motivate residents to reflect on their own learning needs prior to doing subspecialty rotations. 2) To guide the content and tone of interactions between residents and preceptors.
DESCRIPTION OF PROGRAM/INTERVENTION: 14 PGY2 and PGY3 residents were instructed to generate focused clinical questions, relevant to the individual subspecialties as they pertain to primary care practice, prior to starting subspecialty outpatient rotations. Questions were distributed to preceptors prior to the residents' arrival in the practices. The intervention was applied throughout an 8-week ambulatory block, in which our residents worked with 23 faculty preceptors in 17 medical and surgical subspecialties.
FINDINGS TO DATE: At the end of the block, we surveyed residents and preceptors and conducted a focus group with a subset (6/14) of the residents. 14/14 residents completed the survey. Seventy-one percent (10/14) agreed or strongly agreed that this is a valuable educational tool, agreed or strongly agreed that they used the exercise to focus their learning efforts, and agreed or strongly agreed that it enhanced their learning experiences. 8/23 faculty surveys were completed and returned after two mailings. All responding preceptors agreed or strongly agreed that the residents submitted relevant clinical questions, and all but one preceptor agreed or strongly agreed that the exercise provided a useful educational experience for the residents. 6/8 preceptors agreed or strongly agreed that they would use this question-based approach in future precepting activities. In the focus group the residents agreed on the following regarding this exercise: formulating questions is the most valuable part of the exercise; limited time in subspecialty rotations is more focused and productive; resident and preceptor shifted focus from the subspecialist to the generalist; writing good, focused questions is challenging; and naÿve learners are uncertain they are asking the "right" questions.
KEY LESSONS LEARNED: 1) Generating clinical questions is a valuable learning tool for residents in subspecialty rotations, helping to enhance learning experiences and focus learning efforts. 2) Barriers to implementation include the effort required to insure the timely completion of question generation by residents and administrative time commitment.
MODALITY USED TO DEMONSTRATE: Poster.

**EVIDENCE BASED JOURNAL CLUB.** C.Y. Todd[1], E.K. Dawson[1]; [1]Southern Illinois University, Springfield, IL *(Tracking ID #50173)*

STATEMENT OF PROBLEM OR QUESTION: An unsucessful journal club existed at our residency program. As emphasis on physicians to practice evidence based medicine increases, residents require formal training in this area.
OBJECTIVES OF PROGRAM/INTERVENTION: We created an integrated forum for an evidence based journal club that incorporates public speaking skills and formal education in biostatistics and critical appraisal skills.
DESCRIPTION OF PROGRAM/INTERVENTION: In our program, Journal Club takes place on a weekly basis. Residents present one article during each year of their training. A faculty supervisor and a biostatitian attend each session. Residents adhere to specific guidelines for their presentations. 1.) Each presentation must take as its focus an article found by the resident as an answer to a real clinical question. Residents discuss the techniques they used in order to find their article. 2.) Residents must use presentation software for their presentation. 3.) Residents meet with a faculty preceptor and biostatitian prior to their presentation. 4.) Presentations include an expanded discussion of one key biostatistical concept relevant to the article. 5.) Residents are peer evaluated for the quality of their analysis as well as their effectiveness as public speakers. 6.) Each presentation is placed on the Department of Medicine's website.
FINDINGS TO DATE: Practitioners of evidence based medicine start with clinical questions, perform a critical review of medical literature, and end with decisions about implementing new information. We discovered that residents display deficits at all stages of this process. They require repeated exposure to search methods and biostatistical concepts. They respond to private as well as didactic sessions on biostatistics and critical appraisal skills. Residents require practice in public speaking. Finally, they need practice in academic debate in order to improve their confidence in critical appraisal skills.
KEY LESSONS LEARNED: One outcome of our integrated journal club has been that residents have found critical flaws in articles from prestigious, peer reviewed journals. This has increased their awareness of the importance of critical appraisal skills. Incorporation of a consistent attending/biostatitian team into the resident journal club has improved attendance and raised the expectations for this activity. An ongoing study of our journal club is looking at whether articles presented in our forum cause meaningful changes in residents' clinical behavior.
MODALITY USED TO DEMONSTRATE: A dummy set up of our website displaying resident presentations will be displayed. Examples of resident discussions of statistical/critical appraisal concepts will be included in the display. Instances where residents have found major flaws in articles published in well known, peer reviewed journals will be demonstrated. Instructional and evaluation instruments will be available for review.

**EXPORTING US STYLED RESIDENCY TRAINING: LESSONS FROM JAPAN.** A. Tulsky[1], H. Murakami[2], M. Zeidel[1]; [1]University of Pittsburgh, Pittsburgh, PA; [2]Teine-Keijinkai Hospital, Sapporo, Japan *(Tracking ID #51367)*

STATEMENT OF PROBLEM OR QUESTION: Postgraduate medical training in Japan is technology and specialty oriented with little attention given to teaching the skills and knowledge of general internal medicine. We are reporting on the first year of a collaborative effort between the University of Pittsburgh and Tiene Keijinkai Hospital (TKH) in Sapporo, Japan to develop an internal medicine residency modeled on US training.
OBJECTIVES OF PROGRAM/INTERVENTION: The goals for the first year were: 1) introduce an infrastructure consisting of learning goals, clinical rotations, conferences (e.g. morning report) and evaluation system 2) develop a hands on training environment where housestaff assume primary patient responsibility and 3) enhance interviewing, physical diagnosis and documentation skills.
DESCRIPTION OF PROGRAM/INTERVENTION: Two internists (one US trained but non-Japanese speaking the other Japanese trained) formed the core teaching faculty to provide clinical skills training and facilitate all teaching conferences (held in English). Intern orientation began with 2 weeks rounding with medicine teams in Pittsburgh followed by 6 weeks hands on intensive clinical skills development in Japan. Clinical rotations were by necessity specialty based as general medicine services in Japan generally do not exist. Formal teaching by the core faculty included daily morning report and twice weekly teaching rounds. The curriculum was modeled on IM training programs at the University of Pittsburgh.
FINDINGS TO DATE: Interns demonstrated an excellent fund of knowledge but weak clinical skills, particularly in oral presentations and documentation. Although orientation addressed these areas, progress was limited during ward months because interns followed few patients. Attending physicians were reluctant to hand the care of their patients over to interns who traditionally observe. Interns often did not wish to offend the attending and preferred to observe. Turnover was limited by a length of stay of 22 days.
KEY LESSONS LEARNED: We recognized the need for geographic general medicine teaching services run by the core faculty where housestaff admit from all specialty services. The core faculty will be in a better position to encourage the attending staff to turn more patients over to residents and provide greater autonomy in patient care. Bedside teaching rounds, previously done one to one with new admissions, will become part of regular teaching sessions to promote clinical skills development. Clinical skills will be formally measured using the mini-CEX. Finally, flexibility, enthusiasm and a committment to general internal medicine training are essential to overcome the cultural and system barriers of an international educational venture.

**EKG RHYTHM STRIP INTERPRETATION PATTERNS OF MEDICAL INTERNS.** C.M. Vergara[1]; [1]Hartford Hospital, Rock Hill, CT *(Tracking ID #52007)*

STATEMENT OF PROBLEM OR QUESTION: Very little is known about the level of proficiency of medical interns with respect to interpretation of various EKG rhythms.
OBJECTIVES OF PROGRAM/INTERVENTION: 1)Assess baseline competencies regarding cardiac rhythm recognition 2) report on common incorrect responses and provide plausible explanations.
DESCRIPTION OF PROGRAM/INTERVENTION: Medical interns were asked to identify 30 EKG strips using conventional EKG terminology. Some rhythm strips contained more than one abnormality.The test was distributed one week prior to commencement of any clinical duties. 113 interns (59.5%) submitted the test. Completed tests were corrected by one evaluator, in order to reduce reader variability.
FINDINGS TO DATE: Afib was commonly mistaken for aflutter. Most did not state the atrial to ventricular pattern (e.g., 2:!, 4:1 block) of the aflutter. Most did not abide by the convention of reporting the ventricular response rate of the afib. Wandering pacemaker was rarely correctly identified. Of the 50% that corectly identified junctional rhythms, most did not stipulate whether the rhythm was junctional, accelerated junctional or junctional tachycardia. Over 90% correctly identified Vtach, Vfib and asystole. SVT was commonly mistaken for Vtach. Most can recognized PVCs more readily than PACs, but failed to identify group beating involving PVCs (e.g., bigeminy or trigeminy). Most have trouble recognizing type 1 from type 2 second degree AV block, and the most common incorrect response for either type was first degree AV block. Third degree Av block is commonly missed and most did not report the accompanying escape rhythm. Most failed to state whether the rhythm was sinus or not,for rhythms with multiple findings.
KEY LESSONS LEARNED: As a qualitative study, incorrect responses are as informative as correct responses. Although only 59.5% participated, the results were similar in each incoming

class. The results above illustrate the baseline competencies, which is dependent on the medical school exposure and/or other experiences prior to residency training. The interns consisted of a heterogenous group of domestic and foreign medical graduates, osteopathic interns, preliminary interns and combined med/psych and med/peds interns. Despite this diversity the pattens of responses (correct or incorrect) were reproducible with each year. In addition to the above findings, two other trends were noteworthy. One concerns responses, such as "LVH" and "bundle branch block." These entities can be determined only via 12 lead EKG and not a rhythm strip. The other trend is the number of blank responses when faced with rhythm strips that contained multiple abnormalities. most interns may discern 1 or 2 abnormalities, but rarely were all abnormalities identified. These findings suggest lack of formal training in the systematic approach to rhythm strip interpretation. The results of this study can be used for: 1)monitoring improvement; 2) individualize didactic stategies to correct specific deficits; and 3) compare baseline competencies among graduates of different medical schools (e.g., allopathic vs. osteopathic or domestic vs. foreign graduates).

**RESIDENT ROLE-PLAYING TO ENHANCE EDUCATION IN PHYSICIAN-PATIENT INTERACTIONS.** W. Wertheim[1]; [1]State University of New York at Stony Brook, Stony Brook, NY *(Tracking ID #51276)*

STATEMENT OF PROBLEM OR QUESTION: Residents are given little supervision in their interactions with patients, and often find discussion of bad news, dealing with "difficult" patients, and other challenges in physician-patient interaction frustrating.
OBJECTIVES OF PROGRAM/INTERVENTION: Goals of the program were to: 1)Augment residents' skills in the interaction between the patient and the physician, 2)Improve skills in dealing with challenging interpersonal interactions, and 3) Provide a structured setting for feedback on their interviewing techniques.
DESCRIPTION OF PROGRAM/INTERVENTION: Primary Care Internal Medicine residents participate in a block psychosocial rotation, designed to teach about the biopsychosocial model and its application to the clinical setting. During the rotation, three scenarios are acted out by the learners: one, an encounter with a very directive patient, then the delivery of bad news; the second, an encounter with a patient who is hostile to the physician and refuses recommended treatment; and the third, an older patient who does not perceive her own cognitive decline. The role-play is videotaped for subsequent review. Residents act out both patient and doctor roles in the presence of their colleagues; following the simulation, the group, led by a preceptor, discusses its observations. The group also reviews the video of the encounter for further qualitative evaluation. A quantitative measure using a 5-point scale is completed to evaluate the exercise.
FINDINGS TO DATE: The learners find this a very beneficial experience. On a scale of 1 – 5, (1 : "unhelpful, no educational benefit", 5: "excellent, major educational benefit"), the mean score of the sessions was 4.5. Qualitative evaluation shows that the residents are able to explore different domains of the interview, including: structure of the interview, use of open-ended questions, identification of verbal and non-verbal cues, and barriers to communication; identification of important social history including alcohol and substance use and domestic violence; psychological factors in the interview; emotional responses to the patient, and emotional responses to the physician.
KEY LESSONS LEARNED: Role-play allows the residents to improve their skills in patient-physician interaction in a non-threatening setting. By allowing the residents to act in both physician and patient roles, they gain greater understanding of the underlying emotions and agenda both parties bring to this setting. Direct observation by both peers and preceptor affords immediate feedback; subsequent review of videotapes allows the actors to critique their own performance, and enables them to recognize where behavior changes may occur in the interview setting. Given the primacy of the doctor-patient relationship, this exercise has obvious benefits. Further study is needed to evaluate whether this translates into long-term benefit in physician behavior.

**WOMEN'S HEALTH AS AN INTERDISCIPLINARY CLERKSHIP FOR MEDICAL STUDENTS: STEPS TO SUCCESS.** K.P. White[1], R. Rohrbaugh[2], S. Richman[1]; [1]Yale University, New Haven, CT; [2]Yale University, West Haven, CT *(Tracking ID #51759)*

STATEMENT OF PROBLEM OR QUESTION: How can a multidisciplinary clinical experience in Women's Health integrate and expand on the core disciplines of Internal Medicine (IM), Psychiatry (Psych) and Obstetrics and Gynecology (OB/GYN)? How can this curriculum include Nurse Practitioner (NP) students and serve as a model for other interdisciplinary clerkships?
OBJECTIVES OF PROGRAM/INTERVENTION: 1. To provide an innovative multidisciplinary clerkship at an institution that, as yet, does not have a comprehensive Women's Health facility. 2. To enhance the core curriculums of IM, Psych, and OB/GYN as specific to women by combining them, include the behavioral and social sciences and set these disciplines within a framework of lifespan issues and preventive health specific to women. 3. This clerkship provides the first in a step-wise approach to the ultimate integration of women's health, as defined above, into the medical school curriculum.
DESCRIPTION OF PROGRAM/INTERVENTION: A four-week clerkship was developed by a working group co-chaired by IM, psych and OB/GYN faculty. The faculty of all three disciplines share jointly in responsibility for the course. Administrative services are provided by the Medical School Office of Clinical Education. As a prerequisite, students have completed the IM, OB/GYN, and PSYCH core clerkships. The didactic section includes NP and medical students who discuss eleven topics in a case-based seminar setting with multidisciplinary faculty. Clinical experiences include the medical students seeing patients at the same IM, Gynecology, and Psych sites each week. Students also attend Specialty Clinics. The curriculum is available on a Web Site.
FINDINGS TO DATE: Students have been very favorable in their evaluation of this innovative Clerkship. One student stated that the multidisciplinary approach would change the way she would practice medicine. Medical and NP students have found sharing of information to be very valuable to their future collaboration in clinical medicine. Faculty have been enthusiastic in sharing with colleagues in other disciplines.
KEY LESSONS LEARNED: A multidisciplinary approach to Women's Health integrates and expands the female gender specific core curriculums of IM, PSYCH and OB/GYN. This model can provide a framework for other multidisciplinary courses as we attempt to cross departmental lines in improving medical education.
MODALITY USED TO DEMONSTRATE: Documents of curriculum and course schedule. The Web site will be available.

**BUILDING GERIATRICS CURRICULA WITHIN MEDICAL AND SURGICAL HOUSE OFFICER PROGRAMS THROUGH FACULTY DEVELOPMENT.** B.C. Williams[1], M.A. Supiano[1], J.T. Fitzgerald[1], J.E. Jensen[1], J.B. Halter[1]; [1]University of Michigan, Ann Arbor, MI *(Tracking ID #51190)*

STATEMENT OF PROBLEM OR QUESTION: The large and growing number of elderly patients seen by non-primary care specialists has led to a need for geriatrics training in medical and surgical specialties.
OBJECTIVES OF PROGRAM/INTERVENTION: To develop faculty leaders and sustainable geriatrics curricula within 15 non-primary care residency and fellowship programs at the University of Michigan.
DESCRIPTION OF PROGRAM/INTERVENTION: One lead faculty member from each discipline is enrolled in the program for three years that focus on Faculty Development, Program Implementation, and Program Maintenance, respectively. The Faculty Development year described here. The faculty development program is based on weekly half-day teaching/learning seminars that focus on: a) Clinical Geriatrics (25%), b) Teaching Skills (25%), c) Curriculum Development (20%), d) Program Evaluation (10%), e) Education Research (10%), and f) Career Development (10%). Faculty participants design their own learning experience by developing a geriatrics curriculum specific to their discipline. Course format includes assigned readings; presentations by lead faculty and guest discussants; and precepted clinical experiences in a geriatrics medical clinic, a cognitive disorders clinic, and a geriatric psychiatry clinic. The program is staffed by nine faculty from internal medicine, psychiatry, neurology, and social work specializing in geriatrics. The project is supported by the D. W. Reynolds Foundation and the University of Michigan Medical School.
FINDINGS TO DATE: Two to three programs will be enrolled every six months from July, 2001, through January 1, 2005, including Emergency Medicine and Gynecology (July, 2001); Hematology/Oncology, Rheumatology, and Nephrology (January, 2002); Thoracic Surgery and Urology (July, 2002); and Physical Medicine and Rehabilitation (January 2003). Subsequent programs are being recruited.
KEY LESSONS LEARNED: Few precedents exist for cross-disciplinary graduate medical education curricular reform in which curricular change is guided by physician educators from an "external" discipline; we are aware of none on the scale of the present project. By implementing a "train-the-trainer" model we hope to develop a sustainable network of faculty within non-primary care disciplines with expertise in teaching geriatrics. Two main premises of the model are that: a) to be sustainable and credible to house officers, curricular change must be guided and implemented by faculty within each specialty, and b) substantial time must be spent on "generic" skills such as teaching skills and curriculum development, in addition to geriatrics. Key success factors to date have included securing the support of the Dean and Department Chairs, and protecting the time of busy clinician educators for skills development in geriatrics education.
MODALITY USED TO DEMONSTRATE: Poster, instructional materials.

**COMMERCIAL MOVIE CLIPS OF PATIENT-DOCTOR INTERACTIONS TO TEACH PRINCIPLES OF CARING.** J.L. Wofford[1], M.M. Wofford[1], P.R. Lichstein[1]; [1]Wake Forest University, Winston-Salem, NC *(Tracking ID #50194)*

STATEMENT OF PROBLEM OR QUESTION: In a time-pressed, fragmented health care environment, clinician-educators need efficient strategies to better teach the principles of caring during clinical rotations.
OBJECTIVES OF PROGRAM/INTERVENTION: With the overall goal of promoting caring in the clinical rotations, our specific objectives were the following: 1. Create a digital library of clips from mainstream movies that effectively illustrate a variety of topics related to the human dimension of patient care. 2. Catalog and index the clips for rapid use as "trigger tapes" and correlate with principles of caring 3. Define venue-specific educational strategies for use of these movie clips
DESCRIPTION OF PROGRAM/INTERVENTION: We identified movie clips from mainstream commercial movies that illustrate a variety of patient-doctor interactions. The use of clips from the last 70 years allowed construction of a chronology of caring that we then compared with landmark events in medicine. We captured both positive and negative examples of caring by browsing movies identified through multiple sources. Challenges included copyright issues, hardware\software requirements for creation and display of full screen high quality clips, and dissemination costs. The final DVD product contained clips from 25 movies indexed by categories (counselling, empathy, interviewing, technology, personal relationships, physical examination, education). As a pilot in large group settings, students were asked to discuss the clips from different perspectives (patient versus doctor) and to assess value of the educational strategy. DVD navigation allowed easy comparison of caring strategies between movie clips. Portability of the DVD makes possible the use of movie clips during interludes on teaching rounds when similiar issues are encountered. Relating the movie clips to current literature on caring enhances this educational strategy.
FINDINGS TO DATE: The DVD was a technical success. Faculty and students are enthusiastic about the product. The use of movie clips offer a time efficient, enjoyable means of broaching the topic of caring with students. The DVD can help faculty organize their own approach to teaching principles of caring. While older movie clips better illustrate positive examples of caring, students see older movie clips as less relevant to contemporary care.
KEY LESSONS LEARNED: A DVD library of commercial movie clips is feasible, legal, and enhances the use of trigger tapes in teaching the principles of caring.
MODALITY USED TO DEMONSTRATE: Laptop computer.

**A WOMEN'S HEALTH WEB-SITE FOR LEARNERS AT MULTIPLE LEVELS.** J.R. Zebrack[1], J.L. Mitchell[1], S.L. Davids[1], C. Keating-Christensen[1]; [1]Medical College of Wisconsin, Milwaukee, WI *(Tracking ID #51676)*

STATEMENT OF PROBLEM OR QUESTION: National organizations such as the ABIM have noted deficiencies in generalists' provision of comprehensive women's health. They have called on medical educators to develop curricula and to address barriers in teaching women's health. These barriers include few faculty with expertise in women's health and limited time to teach in ambulatory settings.
OBJECTIVES OF PROGRAM/INTERVENTION: Develop a women's health website that houses a comprehensive women's health curriculum for self-study for learners at multiple levels.
DESCRIPTION OF PROGRAM/INTERVENTION: Our website includes not only the women's health curriculum, but links to resident schedules, administrative information about the resident women's health elective, and library resources. The curriculum portion is constructed with problem-based modules. Learners log-in, choose a module, read an evidence-based summary, have the option to click on pertinent articles or guidelines, and take a post-test. The post-test is a case-based series of questions with feedback provided after each question is answered.
FINDINGS TO DATE: A website allows for student and resident access at all of our clinical locations and at any time of day. Self-directed materials allow learners to proceed at their own pace and review areas in which they feel deficient. The required log-in and post-test provide objective evidence of appropriate use of independent study time. By pooling resources into a shared website, a few experts in women's health can impact many learners as well as other educators.
KEY LESSONS LEARNED: The ease of website development is dependent on the quality and sophistication of the web page editor software. In designing the website, one must consider visual appeal and ease of navigation, while still establishing a distinct identity. Website design is often constrained by download time, browser variability, printer-friendly formats, and compliance with html standards.
MODALITY USED TO DEMONSTRATE: On-line negotiation of website and examples of curricular material.

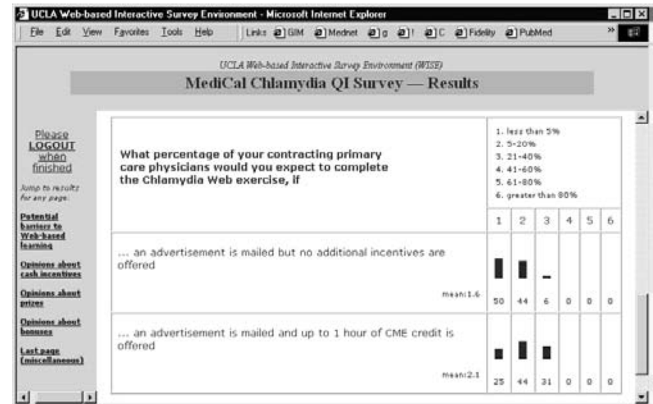
# INNOVATIONS IN PRACTICE MANAGEMENT

**HELPING PHYSICIANS TRACK THE IMPACT OF DISEASE AND TREATMENT IN OSTEOARTHRITIS.** M. Bayliss[1], L. Fortin[1], M. Kosinski[1], J. Ware[1], L. Lasichak[2], E. Sullivan[3], S.M. Vogel[3], W.L. Straus[3]; [1]QualityMetric Incorporated, Lincoln, RI; [2]Henry Ford Health System, Detroit, MI; [3]Merck & Co., Inc., West Point, PA *(Tracking ID #51861)*

STATEMENT OF PROBLEM OR QUESTION: Until now, there have been few tools suitable for monitoring osteoarthritis (OA) in routine clinical practice, limiting physicians' ability to easily track disease progression and treatment. We implemented a new Internet-based system for tracking the impact of OA and the effects of treatment on patients' functioning and well-being.
OBJECTIVES OF PROGRAM/INTERVENTION: The aim of this study is to evaluate the effectiveness, practicality and usefulness of the Internet-based Dynamic OA Impact Survey (OA Survey) for patients and physicians in tracking the impact of OA, improving patient-physician communication and influencing treatment related behaviors.
DESCRIPTION OF PROGRAM/INTERVENTION: Approximately 600 patients with an ICD-9 diagnostic code of osteoarthritis are being recruited from 2 – 3 individual rheumatology or primary care clinics at a major teaching hospital in the Midwest. Patients can access and complete the OA Survey online either in the clinic office, or via other means of accessing the Internet such as a home computer. Patients are followed prospectively for six months, completing the OA Survey at baseline, three months and six months.
The impact of OA on patients' functioning and well-being is measured with the OA Survey, a validated system for assessing and tracking functioning with OA and treatment outcomes. The OA survey is administered via the internet and uses a general health measure (the SF-8(tm) Health Survey), OA-specific measures, and other modules to assess the burden of OA and the benefits of treatment. It provides practical and precise measurement of OA impact for individual patients and yields real-time, customized reports of survey responses.
FINDINGS TO DATE: The OA Survey has been shown to be a valid tool for measuring the effect of OA on functioning and well being, and for tracking treatment effects. Its' value and practicality for use in day-to-day clinical practice is explored in this study. We will present results from the implementation of the OA Survey from January 1, 2002 to March 31, 2002. We will present qualitative and quantitative data to assess (1) the practicality and usefulness of the survey in routine clinical practice; (2) the patients' perception of and satisfaction with OA treatments; (3) the utility of concurrent administration of a disease-specific and a general health survey; and (4) associations between OA Impact scores and healthcare-related attitudes and behaviors.
KEY LESSONS LEARNED: By quantifying the effect of OA on patients' lives and the benefits of treatment, the Dynamic OA Impact Survey can potentially help physicians individualize treatment plans based on the individualized survey results.
MODALITY USED TO DEMONSTRATE: The Dynamic OA Impact Survey will be demonstrated in real-time, using an internet connection and projected onto a screen for audience viewing.

**A SYSTEM FOR AUTHORING AND ADMINISTERING ONLINE SURVEYS USING XML, EMAIL, AND THE WORLD WIDE WEB.** D.S. Bell[1], C.E. Harless[1]; [1]University of California, Los Angeles, Los Angeles, CA *(Tracking ID #52017)*

STATEMENT OF PROBLEM OR QUESTION: The Internet is emerging as an efficient medium for collecting data from employees and patients, but no standards exist and each online survey typically requires custom software for administration.
OBJECTIVES OF PROGRAM/INTERVENTION: To develop a standards-based software system for authoring, pilot testing, and administering online surveys.
DESCRIPTION OF PROGRAM/INTERVENTION: We created an Extensible Markup Language (XML) schema for authoring surveys, which defines survey elements including pages that may be linked using branching logic and questions that may be open- or closed-ended. The Web-based Interactive Survey Environment (WISE) supports survey display, pilot testing, revision, version management, sending email invitations to participate, collecting consent (if required), collecting survey data, monitoring results, and email messaging to respondents and non-respondents. WISE also shows each respondent their results compared with all results collected to date (Figure).




FINDINGS TO DATE: Two surveys have been completed using WISE. Thirteen of 29 internal medicine residents (45%) completed a 42-question survey assessing their needs for information systems training. Sixteen of 30 medical directors of California managed care organizations (53%) responded to a 26-question survey assessing their expectations for an online quality improvement initiative. Item-completion rates were 99% and 94%, respectively. Authoring, testing, launching, and following up each survey took about 2 days of the author's time, and each survey was completed within 2 weeks of its launch.
KEY LESSONS LEARNED: WISE supports the efficient creation and management of online surveys, probably due in part to its use of an XML schema for authoring. Showing respondents their results in comparison with others may enhance participation.
MODALITY USED TO DEMONSTRATE: The survey authoring and administration process will be demonstrated using a live Internet connection.

**MEASURING AND IMPROVING PATIENT AND PHYSICIAN SATISFACTION AND QUALITY OF CARE: A PILOT STUDY.** L. Blank[1], R. Lipner[2], G. Fortna[1], B.F. Leas[1]; [1]American Board of Internal Medicine, Philadelphia, PA; [2]Institute for Clinical Evaluation, Philadelphia, PA *(Tracking ID #52323)*

STATEMENT OF PROBLEM OR QUESTION: Continuous quality improvement, self-assessment, self-reflection and professional development increasingly are part of the lexicon of medicine, however, these goals are challenging to embrace and operationalize for individual physicians.
OBJECTIVES OF PROGRAM/INTERVENTION: Within that context, patients and physician peers can serve a unique role in physician performance assessment, specifically in the areas of communication and professionalism. Using interactive voice system technology, well-tested surveys that focus on patient-physician communication have recently been introduced as a self-evaluation module by the American Board of Internal Medicine (ABIM).
DESCRIPTION OF PROGRAM/INTERVENTION: In 2000, the ABIM convened a pilot study of this process with 173 ABIM-certified physicians practicing internal medicine and its subspecialties who were located geographically throughout the United States. One hundred physicians completed all components of the pilot, which included ratings by 25 patients and 10 peers, the participants' ratings of their own skills, an overall evaluation of the process, and reflection on practice changes suggested by the feedback that they received.
FINDINGS TO DATE: Two-thirds of the participants reported that the process will guide them in improving the care they provide patients, and 81% were encouraged to seek routine feedback from patients about the quality of their commmunication and professionalism. The physicians universally rated their abilities equal to or lower than their patients' assessments.
KEY LESSONS LEARNED: The patient/physician peer assessment module provides an efficient, confidential opportunity for physicians seeking recertification to receive valid patient assessments which can impact patient-physician communication by providing constructive feedback, promoting self-reflection, and serving as a measure of continuous professional development and quality improvement.

**A PATIENT QUOTA SYTEM FOR RESIDENTS IN AN URBAN HOSPITAL URGENT CARE CENTER DECREASES PATIENT WAITING TIME AND IMPROVES SATISFACTION OF RESIDENTS.** P.K. Davidson[1], S.S. Crosby[1], E.A. Paglia[1]; [1]Boston Medical Center, Boston, MA *(Tracking ID #52014)*

STATEMENT OF PROBLEM OR QUESTION: In a hospital based Urgent Care Center staffed by residents working fixed length (eight hour) shifts and precepted by faculty, residents had no incentive to be efficient. Patient waiting times and throughput times were unacceptably

long, and the satisfaction of residents with the rotation was only fair. Requiring a small number of residents to remain in Urgent Care to see patients during noon teaching conference caused significant dissatisfaction among residents.
OBJECTIVES OF PROGRAM/INTERVENTION: Decrease waiting and throughput times for patients and improve the satisfaction of residents.
DESCRIPTION OF PROGRAM/INTERVENTION: The fixed length eight hour shift was modified to allow residents to leave for the day after completing the care of seven patients. All residents were allowed to attend noon conference if they desired, and faculty remained in Urgent Care during the noon conference either to see patients or to precept those residents who chose not to attend conference.
FINDINGS TO DATE: Mean waiting time for a patient to be seen by a physician in Urgent Care decreased from 84 minutes at baseline to 57 post-intervention. Mean throughput time for patients decreased from 132 minutes at baseline to 100 minutes post-intervention. Surveys of residents showed that 68% felt the intervention improved their experience in Urgent Care, 32% felt there was no change, and none of the residents felt the intervention made their experience worse. Residents also reported that the intervention increased the likelihood that they would attend noon conference. Blinded reviews of resident patient care notes assessed the adequacy of history, physical exam, laboratory studies and assessment/plan both at baseline and after the intervention; no significant differences were found.
KEY LESSONS LEARNED: Residents can respond to an incentive that rewards efficiency in caring for patients without compromising the quality of patient care. Allowing increased flexibility/autonomy in their daily schedule was associated with dramatic improvement in the satisfaction of residents during the rotation.

### MANAGEMENT OF PATIENTS WITH SICKLE CELL DISEASE: COORDINATION OF CARE IN OUTPATIENT, EMERGENCY ROOM AND INPATIENT SETTINGS.

K.R. Epstein[1], G. Riddick-Burden[1], D. Thompson[1]; [1]Thomas Jefferson University, Philadelphia, PA *(Tracking ID #51584)*

STATEMENT OF PROBLEM OR QUESTION: Many patients with sickle cell disease receive care in the outpatient, emergency room, and inpatient settings. However, there is often very poor coordination of care or exchange of information between these sites, resulting in less than optimal clinical care.
OBJECTIVES OF PROGRAM/INTERVENTION: One of the goals of the Jefferson Sickle Cell Program has been to approach the clinical care of the patients from a systems perspective, viewing the patients' care as a continuum that involves different care settings, the expertise of different health care professionals, and the consideration of barriers to care.
DESCRIPTION OF PROGRAM/INTERVENTION: Using a multidisciplinary approach, with the involvement of general internal medicine, hematology, nursing, and social work, we have developed different programmatic features. These include: development of individualized intranet web-based treatment plans for use in all care settings, development of protocols for care in the emergency room setting, education of medical housestaff and nurses about sickle cell disease, pain, and opioids, coordination of care by a sickle cell nurse coordinator and social worker, identification of and interventions in psychosocial issues that are impacting on patients' health care utilization, and concurrent management by general medicine and hematology to serve both the patients' primary care and hematological needs.
FINDINGS TO DATE: In the six years since creation of this multidisciplinary program, there has been a marked reduction in emergency room utilization and inpatient hospitalization. ER utilization has decreased from a rate of 699 visits for Quarter 3 FY1995 to 133 for Quarter 3 FY 2000. Likewise, inpatient hospital utilization has decreased from a rate of 198 admissions for Quarter 3 FY1995 to 90 for Quarter 3 FY 2000. Outpatient utilization has remained stable. Mortality rates have remained low.
KEY LESSONS LEARNED: The management of patients with complex chronic diseases involves consideration of the medical, psychological and social factors impacting the patients. Optimal care requires a multidisciplinary approach. Ongoing, repetitive education is necessary not only for the patients, but more importantly for the health care professionals caring for the patients.

### IMPROVING ANTICOAGULATION PRACTICES USING ELECTRONIC MEDICAL RECORDS.

C. Estrada[1], C. Collins[1], M. Martin-Hryniewicz[1]; [1]East Carolina University, Greenville, NC *(Tracking ID #51291)*

STATEMENT OF PROBLEM OR QUESTION: Patients on oral anticoagulants should be informed about the risks and benefits, when to seek medical attention, and the potential for medication interactions. Under usual practice, management is less than optimal due to the frequent monitoring and dose adjustment. Anticoagulation Management Services (AMS), as an alternative to usual care, provides a model to deliver care and possibly improve outcomes.
OBJECTIVES OF PROGRAM/INTERVENTION: To disseminate an Anticoagulation Management Service program by using an electronic medical record tracking system.
DESCRIPTION OF PROGRAM/INTERVENTION: A multidisciplinary team developed templates for anticoagulation management in our electronic medical record system (Logician (r), MedicaLogic, Inc.). The multidisciplinary team included 6 physicians, 3 pharmacists, 5 nurses, and one research associate. Data were coded for electronic retrieval to monitor quality of care and for use in future research studies. Data gathered at the initial visit included: indication for anticoagulation, desired target International Normalized Ratio (INR), expected duration of therapy, and bleeding risk index. Data gathered during subsequent visits incorporated: assessment of compliance, events, symptoms, current INR, and dosing instructions. Management guidelines were hot linked from Logician to our Internet site when the chart templates were opened. Data obtained by the nurse in the anticoagulation clinic and other clinic locations were entered in the electronic medical record. The template was created, tested, and implemented.
FINDINGS TO DATE: The template provides a systematic approach for patient care. Data was organized in sections: initial assessment, follow-up, assessment and plan, anticoagulation management resources, prior laboratory data, and others. Prior information is automatically displayed during patient follow-up. Management guidelines were linked to www.ecu.edu/anticoagulation (anticoagulation protocols, weekly dose equivalents of warfarin, 6th Consensus Conference on Antithrombotic Therapy guidelines, warfarin information, vitamin K content in food). Clinicians in our practice have ready access to current data on the 325 patients enrolled to date. The standardized method for assessment and electronic retrieval of information is so far functioning as anticipated with positive reviews from practitioners.
KEY LESSONS LEARNED: The program provides the infrastructure for nurses, pharmacists, and physicians to manage anticoagulation safely and consistently. Institutional support, readiness, and technical expertise were fundamental for success. Electronic accessibility of data will allow outcomes based evaluations.
MODALITY USED TO DEMONSTRATE: Poster.

### IMPROVEMENT IN TELEPHONE ACCESS IN AN ACADEMIC GENERAL INTERNAL MEDICINE PRACTICE.

G.S. Fischer[1], M.S. Roberts[1], D. Simak[1]; [1]University of Pittsburgh, Pittsburgh, PA *(Tracking ID #51189)*

STATEMENT OF PROBLEM OR QUESTION: University of Pittsburgh Physicians–General Internal Medicine is an academic practice of 24 faculty and 37 resident physicians, which receives a mean of 556 calls per day (range 325 – 725). Anecdotal patient complaints and objective data (mean time on hold 2.2 minutes, only 57% of calls answered live and 19% of calls abandoned) indicated significant problems with telephone services.
OBJECTIVES OF PROGRAM/INTERVENTION: To decrease the hold time to 30 seconds, increase calls answered live to 90%, and decrease call abandonment rate.
DESCRIPTION OF PROGRAM/INTERVENTION: A multidisciplinary team used traditional quality improvement tools (e.g.: flow-charts and cause-and-effect diagrams) to analyze the problem, identifying several causes of delays: (1) The automated menu system that greeted callers was confusing, resulting in misdirected calls. (2) Phone receptionists relayed messages to other staff members (e.g. nurses) by typing them into an electronic medical record (EMR). (2) Patients often left incomplete voice mail (VM) messages, requiring staff to call the patient prior to processing routine requests like refills. (3) Secretarial tasks diverted nurses from answering nurse calls in a timely way. Resulting delays in processing patient requests led to many repeat calls. Using existing staff, we redesigned the process to create four nurse-secretary teams, each of which served a panel of attending and resident physicians. One receptionist was added to the existing three to make routine appointments and immediately transfer other calls to the team nurse or secretary according to type of call. Use of VM was minimized, the automated menu was simplified, and other causes of nurse re-work were eliminated.
FINDINGS TO DATE: Mean number of calls per day fell to 414. Mean time on hold decreased to 12 seconds. 98% were answered live. The abandonment rate dropped to 2%.
KEY LESSONS LEARNED: Phone system with multiple menu-options, heavy use of VM, and receptionists sending messages through EMR to staff led to inefficiencies. Major improvements in customer service were accomplished with reorganization of existing work and little increase in staff.

### HOSPITALIST SPONSORED HOME VISIT PROGRAM: IMPROVING OUTCOMES POST-DISCHARGE.

L.S. Hicks[1], P. Reese[1], J.M. Mcwilliams[1], S.C. Mckean[1], O. Britton[1]; [1]Brigham and Women's-Faulkner Hospitalist Program, Division of General Internal Medicine, Brigham and Women's Hospital, Boston, MA *(Tracking ID #51515)*

STATEMENT OF PROBLEM OR QUESTION: Hospitalists care for a heterogeneous mix of medically underserved patients with chronic illnesses. These patients have higher rates of hospital utilization. Post-discharge home visits may allow hospitalists to identify problems with the discharge plan in individual patients and provide opportunities for quality improvement in the care of patients served by medical residents.
OBJECTIVES OF PROGRAM/INTERVENTION: The hospitalist home visit program (HHVP) is intended to: 1) facilitate communication between primary care providers (PCP), hospitalists, social workers, and visiting nurses when addressing post-discharge patient needs; 2) lead to identification and intervention of problematic issues relating to the transition from one site of care, the hospital, to home; 3) determine if early post-discharge home visits will reduce the use of emergency clinic/hospital visits and the number of hospitalizations among enrolled patients; and 4) determine whether community outreach to an underserved population will provide cost effective, better care, and improve outcomes in a large primary care practice staffed by medical residents.
DESCRIPTION OF PROGRAM/INTERVENTION: On admission to the general medical service, patients who receive their primary care in the medical resident clinic are screened for eligibility. Eligible patients are consented for the HHVP prior to discharge. A pre-home visit note is written in the inpatient chart and an email is written to the PCP once a visit is scheduled. An attending hospitalist or senior resident and student with attending staffing visits each patient within 3 – 5 days post-discharge prior to their follow up appointment. Home safety is assessed, medications are reviewed to assess any discrepencies from discharge planning, and patients are given written instructions. Documentation of the home visit findings and recommendations is placed in the patient's ambulatory record and is forwarded to the PCP. Telephone calls are also placed to PCP and additional support staff if necessary.
FINDINGS TO DATE: During the two month pilot, 12 of 21 eligible patients were consented and visited at home and 9 refused consent or could not be visited because of logistical issues. At least one medication discrepancy was found among 10 of 12 visited patients (83%). The 15-day readmission rate for those visited was 16.7% compared to 22.2% for concurrent controls (eligible but not visited).
KEY LESSONS LEARNED: Post-discharge home visits may lead to reduced short-term rehospitalizations, streamlining of discharge medications, and increased compliance with treatment regimens. A hospitalist sponsored post-discharge home visit program may be an effective means of providing patients a seamless transition from the hospital to home.

**DEVELOPMENT OF A BROCHURE FOR PATIENTS DESCRIBING A HOSPITALIST SERVICE.** A.M. Knight[1], P.J. Deruntz[1], S.M. Wright[1]; [1]Johns Hopkins Bayview Medical Center, Baltimore, MD *(Tracking ID #50534)*

STATEMENT OF PROBLEM OR QUESTION: While patient satisfaction does not suffer when hospitalists are used, hospitalized patients are more likely to report communication problems when their outpatient provider is not involved in their care. There has also been concern that patients may be confused about who is directing their care when hospitalists are used, especially when care is provided by a multidisciplinary hospitalist service.
OBJECTIVES OF PROGRAM/INTERVENTION: To develop an educational tool for patients orienting them to a hospitalist service, its members and their qualifications, and explaining the coordination of their care.
DESCRIPTION OF PROGRAM/INTERVENTION: We developed a brochure describing our hospitalist service, the Collaborative Inpatient Medicine Service (CIMS). The CIMS is made up of four hospitalists, five nurse practitioners, and a physician assistant. CIMS providers work in shifts to provide continuous coverage for their patients. The steps taken to develop the brochure included:
1) Identifying the needs and characteristics of the target audience.
2) Defining and clarifying the goals of the brochure.
3) Exploring resources available for brochure production.
4) Collecting factual information to be included in the brochure.
5) Selecting brochure design and style.
6) Writing and revising the text of the brochure.
FINDINGS TO DATE: CIMS providers give the brochure to patients when they are first admitted. CIMS providers expressed appreciation for having a tool to use when introducing patients to the service. We conducted a survey at discharge of 75 patients before and 97 patients after the brochure was created to determine its impact. We found a significant difference between the groups in their agreement with two statements: 1) "I knew I was being cared for by the CIMS," and 2) "I have a good understanding of how the CIMS runs." 91% of patients who received the brochure reported that it was helpful; most who said otherwise had not read the brochure.
KEY LESSONS LEARNED: A structured and systematic approach was helpful in creating our brochure. The brochure significantly improved patients' reported understanding of the hospitalist service. The approach described may be used by others to create information for patients explaining the organization of complex medical services.
MODALITY USED TO DEMONSTRATE: Examples of the brochure will be provided.

**EFFECT OF NURSE CALLS ON PATIENT APPOINTMENT COMPLIANCE.** S. Kolpak[1], U.G. Mason[1], K. Doll[1], P.S. Mehler[1]; [1]Denver Health and Hospitals, Denver, CO *(Tracking ID #51844)*

STATEMENT OF PROBLEM OR QUESTION: In our busy urban primary care practice, missed appointments represent a large obstacle to maximum physician productivity and patients' access to care.
OBJECTIVES OF PROGRAM/INTERVENTION: 1) To improve patient compliance with scheduled appointments in an urban primary care clinic. 2) To identify potentially available appointment slots to increase access for other patients. 3) To assess the effectiveness of reminder calls by a nurse well known to the patient in accomplishing these goals.
DESCRIPTION OF PROGRAM/INTERVENTION: Primary care providers in our clinic have a significant percentage of appointments missed. During a 3-month period, all patients of the providers with high no-show rates were contacted one day prior to their scheduled appointment by the nurse working with their primary care physician. If contact was not made initially, multiple attempts were made, until the nurse was able to speak to the patient, a family member, or leave a recorded reminder of the appointment. If the patient reported that they would be unable to keep the appointment, another patient was scheduled. Data was recorded based on the type of contact made, if any, and the level of appointment compliance following the contact.
FINDINGS TO DATE: Out of the 879 patients studied during our intervention period, 520 were contacted by the nurse of their primary care provider, either verbally or via message. Of those patients with whom the nurse spoke, the show rate for the appointment the following day was 86%. Those that received only a message reminder of their appointment had a show rate of 69%, resulting in an appointment compliance rate of 77% for all patients contacted. The total appointment compliance rate for all patients during the study period was 68%. This represented a 13% relative increase in the show rate compared to the same time period prior to the study.
KEY LESSONS LEARNED: A program consisting of personal reminder calls by a nurse known to patients significantly increased appointment compliance. This increase was most notable in patients with whom the nurse spoke directly. Unfortunately, this impressive show rate was offset somewhat by the fact that nurses were able to make contact with only 59% of patients the day prior to their appointment. This is to be expected in our largely poor urban population, many of whom lack telephones. Even with the inherent difficulties in contacting patients, our program resulted in an increase of approximately four patient visits per day, a significant increase in physician productivity and access to care for our patients.

**SEVEN STEPS TO REDUCE HOSPITAL DISCHARGE DELAYS.** S.J. Kravet[1], H.R. Rubin[1]; [1]Johns Hopkins University, Baltimore, MD *(Tracking ID #51397)*

STATEMENT OF PROBLEM OR QUESTION: Patient discharges from the hospital are often late in the day. Earlier discharge times may help satisfy patients, make more clean beds available for the evening shift, and reduce the frenzy nurses experience when multiple discharges and admissions occur around 7PM shift changes.
OBJECTIVES OF PROGRAM/INTERVENTION: The objective of this intervention is to give physicians a tested process for facilitating patient discharges earlier in the working day.
DESCRIPTION OF PROGRAM/INTERVENTION: These seven steps are initiated at the time of admission, monitored during the hospital stay, and completed at the time of discharge. 1. At the time of admission, estimate the patient's length of stay. To do so, consider the admitting diagnosis and the patient's co-morbidities. 2. Immediately communicate this projection to your patient and assess their response to your prediciton. 3. Communicate this same information to the patient's caregivers so they can plan in advance for the projected day of discharge. Explain that on the day of discharge they should be ready to take the patient home before 1PM. 4. Assess barriers to discharge throughout the hospitalization. If necessary, work actively with social work, rehab services, and home care to prepare the patient for discharge. Any modifications of the projected discharge day should be promptly communicated to the patient and caregivers. 5. One day before discharge discuss plans with the patient's nurse so they can prepare their discharge process. 6. A responsible team member should complete all discharge paperwork including prescriptions, instructions, and follow-up appointments before leaving the hospital on the day before discharge. 7. On the morning of discharge, the team should round early and write the discharge order.
FINDINGS TO DATE: These seven steps were used by a medical ward team consisting of one teaching/service attending, one resident, and two interns. Over the course of one month of service, the discharge times for this team were compared to the times of a matched control team. The mean time of discharge for the intervention group was 1:41 PM compared to 3:43 PM for controls (difference 123 minutes, 95% CI 32,214). In the intervention group, 62% were discharged before 2 PM vs. 22% of control patients (difference 40%, 95% CI 21,59). In the intervention group, 12% were discharged after 5 PM vs. 28% of control patients (difference 16%, 95% CI 0,32).
KEY LESSONS LEARNED: Physicians can facilitate earlier discharge times by setting expectations for patients and their care givers, and by effectively communicating with the entire health care team.
MODALITY USED TO DEMONSTRATE: A poster presentation will be used to demonstrate the objectives, intervention and results. A 10 minute CD-ROM will be replayed containing a tutorial with patient and housestaff testimonials.

**IMPROVING THE CARE OF PATIENTS WITH ACUTE MYOCARDIAL INFARCTION USING COMPUTERIZED PHYSICIAN ORDER ENTRY (CPOE).** P.K. Lindenauer[1], E.M. Benjamin[1], J. Fitzgerald[2]; [1]Tufts University and Baystate Medical Center, Springfield, MA; [2]Baystate Medical Center, Springfield, MA *(Tracking ID #52369)*

STATEMENT OF PROBLEM OR QUESTION: Acute myocardial infarction is a leading cause of morbidity and mortality nationwide. While the institution of secondary prevention measures (e.g. aspirin, beta blockers, ace inhibitors, lipid lowering agents and smoking cessation) during the hospitalization have been shown to improve patient outcomes results of studies performed by the Centers for Medicare and Medicaid Services (formerly HCFA) and the National Registry of Myocardial Infarction (NRMI) have demonstrated substantial opportunities to improve performance around these areas.
OBJECTIVES OF PROGRAM/INTERVENTION: We sought to use a hospital based computerized physician order entry system to improve the use of secondary prevention measures in the care of patients with acute myocardial infarction at our institution.
DESCRIPTION OF PROGRAM/INTERVENTION: Relying upon the American College of Cardiology/American Heart Association guidelines for the management of patients with acute myocardial infarction we developed a series of order sets for use in our our computerized physician order entry system (Eclipsys 7000). These order sets served two main functions. First, they provided decision support information to physicians at the point of care in order to influence diagnostic testing and medication ordering. Second, order sets were used to facilitate the ordering process itself as this can be cumbersome using our current CPOE system.
FINDINGS TO DATE: From 1/1/01 – 6/1/01 92% of eligible acute myocardial infarction patients received aspirin at discharge, 86% received a beta blocker, 94% received an ACE inhibitor, 92% received smoking cessation counseling and 65% were given lipid lowering agent. These figures represented an improvement over baseline performance (86%, 86%, 92%, 66% and 50% respectively).
KEY LESSONS LEARNED: Computerized physician order entry (CPOE) systems are one means of improving adherence to national guidelines. Relying upon physician memory to initiate an order set is not optimal. CPOE systems that are capable of identifying potentially eligible patients and alerting physicians to the existence of appropriate order sets and guidelines have the potential to dramatically improve care.
MODALITY USED TO DEMONSTRATE: Will bring screen shots of the order sets created within our order entry system.

**USING PATIENT SATISFACTION SURVEYS TO IMPLEMENT AND MEASURE QUALITY IMPROVEMENT IN AN ACADEMIC HOSPITALS' PRIMARY CARE CLINIC. CAN QUALITY IMPROVEMENT OCCUR AS THE RESULT OF A SURVEY?** L.E. Monger[1], K. Baum[1]; [1]University of Minnesota, Minneapolis, MN *(Tracking ID #51227)*

STATEMENT OF PROBLEM OR QUESTION: Surveys have long been used to objectively measure client satisfaction with health care. But can they be effective tools for continuous quality improvement?
OBJECTIVES OF PROGRAM/INTERVENTION: 1) Obtain a benchmark of client satisfaction and quality of care in the Primary Care Clinic (PCC) at the University of Minnesota (UofM). 2) Identify and intervene in domains of patient care that needed improvement. 3) Measure the effectiveness of our interventions.
DESCRIPTION OF PROGRAM/INTERVENTION: In 1999, Fairview University Medical Center and UofM Physicians launched a new PCC to accommodate growing numbers of internal medicine ambulatory patients. We concurrently administered a patient questionnaire to gauge early client satisfaction. Our tool was a repetitive, 5-point Lickert-type patient satisfaction survey. This was a self-administered postal questionnaire. Subjects were all adults seen in the PCC for Internal Medicine within 6 months of the survey. Questions covered previously identified domains of outpatient care important to patient satisfaction. After the initial surveys, a panel of clinic personnel implemented a series of changes designed to address deficiencies found by the questionnaire. The survey was then readministered and mean scores were compared for significant changes. Time-span between survey administration was 22 months.

FINDINGS TO DATE: We received 371 responses from the first survey (32.6% response rate) and 483 responses from the second survey (37.8%). Initial data suggested lower satisfaction domains needing intervention included office support staff, access to care, coordination of care, and physician-patient encounter areas. After round two of the surveys, variance analysis found there was an improvement in overall patient satisfaction with the clinic. The domains of office support staff, access to care, and coordination of care showed no significant changes in scoring. The domains of physician clinical skill, physician interpersonal skill, physician provision of health-related information, and patient involvement in care/respect for patient values all showed significant improvements in mean scores.
KEY LESSONS LEARNED: The data from patient surveys can be successfully used to improve client satisfaction with their clinic. Not every domain with poor client satisfaction, however, responded to quality improvement measures. The translation of survey data into effective quality improvement interventions needs further refinement. Patient questionnaires must be one of several tools used to tackle the multifactorial nature of client satisfaction.

**REDUCING POSTOPERATIVE COMPLICATIONS OF HIP FRACTURE: AN UNCONTROLLED TRIAL.** W.P. Moran[1], C. Watters[1], F. Millman[1], G. Poehling[1]; [1]Wake Forest University, Winston-Salem, NC *(Tracking ID #51931)*

STATEMENT OF PROBLEM OR QUESTION: Patients with hip fracture represent an older heterogenous population with significant medical comorbidity, which contributes to high rates of post-operative complications. Historically, the primary physician is an orthopedic surgeon, with Internal Medicine frequently consulted. Consultation alone may be insufficient in reducing complications in this medically complex population.
OBJECTIVES OF PROGRAM/INTERVENTION: To reduce perioperative complications and improve outcomes of care for hip fracture, we sought to: 1) implement a more effective Internal Medicine/Orthopedic Surgery co-management strategy for medically complex hip fracture patients; 2) assure the provision of timely, evidence-based care to all hip fracture patients; and 3) more effectively involve the patient and family in the rehabilitation process.
DESCRIPTION OF PROGRAM/INTERVENTION: We implemented four interventions. 1) Patients were assigned in the emergency department to an admitting service using a simple algorithm based on the presence of complex or unstable medical problems (General Medicine), functional or cognitive impairment (Geriatrics), and all others (Orthopedics). 2) Standardized, evidence-based order sets were implemented for preoperative and postoperative care, detailing DVT/antibiotic prophylaxis, catheter/device removal, and daily mobility goals. 3) A clinical nurse specialist tracked all hip fracture patients, and facilitated adherence to evidence-based interventions and mobility goals. 4) Patients and families were given an educational brochure highlighting the expected hospital course. Hospital abstracted data from Wake Forest University Baptist Medical Center were risk-adjusted through the University Healthcare Consortium clinical database program.
FINDINGS TO DATE: The algorithm assigned approximately one third of patients by to each of the three services. The proportion of patients with any complication was reduced from a mean of 26.7% (39/146) in the 9 months prior to intervention to 16.6% (53/318) in the 19 months after implementation, with 7.5% (4/53) complication rate in the last three months of intervention. Mean length of stay was unaffected, but aggregated hospital costs were reduced by over $210,000.
KEY LESSONS LEARNED: Despite the potential biases inherent to a pre-post study design, we believe this study supports the notion that postoperative complications in hip fracture patients can be reduced using systematic evidence-based interventions. The strength and contribution of each intervention to the overall reduction in complications and cost should be further studied.
MODALITY USED TO DEMONSTRATE: Poster only.

**ROOT CAUSE ANALYSIS OF ERRORS IN DIABETES CARE-DEVELOPING THE TOOLBOX.** A. Rubin[1], A. Goel[1], B. Littenberg[1]; [1]Burlington, VT *(Tracking ID #51591)*

STATEMENT OF PROBLEM OR QUESTION: Can the tools of Root Cause Analysis help us define and understand systematic erors in the care of diabetic patients? We seek to translate tools used in government and high risk industries to a medical context wher guidelines are clear, but errors are made.
OBJECTIVES OF PROGRAM/INTERVENTION: To develop a toolbox of root cause analysis methods which can be used by researchers in diabetes care.
DESCRIPTION OF PROGRAM/INTERVENTION: We selected a hemglobin A1c of over 11% as a trigger event because it is common in diabetes care, if corrected could improve outcome, and provides minimal legal exposure to the practitioner. We presented four methods of root cause analysis to a team which included a pharmacist, anthropologist, mechanical engineer, a social worker and several internists, and had them review a chart. These methods were barrier analysis, change analysis, events and causal analysis, and tree diagrams. A tree diagram with modifications based on patient causes, health care team, the environment and work methods seems most useful given the level of information a chart can provide.
FINDINGS TO DATE: Root cause analysis may be a useful tool to study errors in care, especially where guidelines exist. Diabetes care is a good example. We have developed a workable toolbox for a multidisciplinary team which uses a chart a a base of information and a tree diagram as our major method.
KEY LESSONS LEARNED: A toolbox for multidisciplinary teams to study errors in medicine using root cause analysis can be developed using a method of practice and consensus building.

**THE EFFECT OF PHARMACIST COUNSELING AND FOLLOW-UP ON PATIENT OUTCOMES F0LLOWING HOSPITAL DISCHARGE.** J.L. Schnipper[1], J.L. Kirwin[1], M.C. Cotugno[1], S. Wahlstrom[1], B.A. Brown[1], C.L. Roy[1], L.S. Hicks[1], S.M. Maviglia[1], S.C. Mckean[1]; [1]Brigham and Women''s Hospital, Boston, MA *(Tracking ID #50889)*

STATEMENT OF PROBLEM OR QUESTION: The peri-hospitalization period is a confusing one for patients, often involving changes in diagnoses and treatment, and can lead to medication-related problems and avoidable health care utilization.
OBJECTIVES OF PROGRAM/INTERVENTION: To determine the effects of pharmacist education and telephone follow-up on patient adherence with medications, adverse drug events, readmission rates, and patient satisfaction at 30 days in patients recently discharged from an acute care hospital.
DESCRIPTION OF PROGRAM/INTERVENTION: Patients being discharged to home from the general medicine service at Brigham and Women's Hospital (BWH) were randomized to the intervention or control group. Intervention patients received pharmacist counseling at the time of discharge and a follow-up phone call 3 – 5 days later. The interventions focused on clarifying medication lists; reviewing indications, directions, and potential side-effects of medications; screening for barriers to adherence; and providing counseling, free care, visiting nurse support, referral to a pharmacist-run adherence clinic, and/or feedback to primary care physicians (PCPs) where appropriate.
FINDINGS TO DATE: Discharge counseling was piloted in 21 patients. Past problems with old medications, including side-effects and non-adherence, were noted in 4 patients (19%). In 6 cases (29%), the counseling resulted in a change in discharge medications, often to more closely match the patient's medications on admission.
Follow-up by phone was piloted in 8 of these patients. Tailored patient education, including side-effect management, was provided in 4 cases. Medication discrepancies between the discharge medication list and the patient's actual medications were noted in 6 cases (75%). Other important findings communicated to the patient's PCP included the need for patient refills in 3 cases, medication side-effects in 2 cases, non-adherence in 1 case, and prohibitive medication costs in 1 case. A prompt physician visit was recommended in 1 case, and an appointment with the adherence clinic in 2 cases.
KEY LESSONS LEARNED: 1. Discrepancies in medication lists between patients and their health care providers are very common and can be readily identified by a pharmacist 3 – 5 days following hospital discharge. 2. Pharmacists can identify several types of potential medication-related problems, hopefully before they lead to adverse patient consequences. 3. Flexibility and a team-oriented, multidisciplinary approach are vital to enlist the support of hospital staff and to balance the needs of a quality-improvement project with those of a randomized controlled trial.
MODALITY USED TO DEMONSTRATE: Videotape of a sample counseling session.

**IMPACT OF AN ELECTRONIC REGISTRY ON DIABETES PRACTICES.** D.S. Smith[1], R.V. Durvasula[1], G.M. Murphy[1], D.W. Foell[1], E. Budris[1], J. Madeux[1]; [1]Yale University, New Haven, CT *(Tracking ID #51940)*

STATEMENT OF PROBLEM OR QUESTION: Primary care clinicians and health systems face formidable challanges in the control of risk factors of preventable diseases. Traditional paper medical records and encounter-based care often fail to make relevant information accessible for prevention at each visit, and population-level data is difficult to obtain to permit proactive interventions. A disease registry organizes a large amount of information and links it to evidence-based guidelines for use by the primary care clinician. We applied the registry approach to diabetes, an important cause of preventable morbidity and mortality.
OBJECTIVES OF PROGRAM/INTERVENTION: The diabetes registry is used to: 1) Organize key data scattered throughout the medical chart onto one visible page, and make it available at every encounter. 2) Identify on a population level factors in greatest need of improvement, and plan group interventions (Diabetes Care Clinics) to address them. 3) Improve processes of care and measures of control for our diabetic population.
DESCRIPTION OF PROGRAM/INTERVENTION: We used clinical encounter diagnoses and prescription records to identify 507 patients with diabetes, then abstracted charts to obtain key data. We used MS Access to develop an electronic diabetes registry. Key indices of control are paired with ADA practice guidelines. Each diabetic patient has a registry page that is available to and maintained by their primary care clinician. Each clinician received quarterly summary reports on the control status of diabetics in their panel.
FINDINGS TO DATE: In the first 8 months of use we have seen significant improvements in processes of care, such as an increase in pneumococcal immunization rate from 23% to 67%, dilated retinal exams from 45% to 62%, and use of urine microalbumin from 18% to 45%. Measures of control such as glycosylated hemoglobin, LDL cholesterol, blood pressure and microalbuminuria have yet to be impacted.
KEY LESSONS LEARNED: A disease registry heightens attention to diabetes care at each encounter, and makes possible proactive efforts to reach out to patients rather than passively waiting for them to appear in the schedule. Population-based initiatives can be developed based on need, and improvements tracked. Focused attention uncovers patients "lost to follow-up" for whom control is often suboptimal, and helps identify the highest risk patients for intensive intervention.

**EXECUTIVE COMPREHENSIVE PHYSICAL EXAMINATION PROGRAM.** T.H. Tomizawa[1], M.J. Ault[1]; [1]Cedars-Sinai Medical Center, Los Angeles, CA *(Tracking ID #49966)*

STATEMENT OF PROBLEM OR QUESTION: Cedars-Sinai Medical Center is a general acute care hospital with 877 total licensed beds and with 90,335 outpatients visits annually. As a health care provider in Los Angeles, we have been asked to provide a medical screening to corporate executives with special attention to their requests such as having advanced, state-of-the-art comprehensive annual physical examination at one location in one day. Employers also requested to provide the highest level of medically valid care with particular sensitivity to the needs and concerns of top corporate executives. In order to meet their requests, the Executive Medical Services was established a year ago.
OBJECTIVES OF PROGRAM/INTERVENTION: Our goals are:
1) To provide a comprehensive annual physical examination in one day
2) To provide state-of-the-art diagnostic procedures and technology
3) To provide age, gender, disease, and ethnicity specific, evidence-based preventive care
4) To meet corporate executives needs and concerns

DESCRIPTION OF PROGRAM/INTERVENTION: The Cedars-Sinai Executive Medical Services program provides a unique array of packaged preventive and primary care services designed specifically for business executives and their families. Employers will choose one of several pre-determined physical examination packages for their executive employees, designed for age and gender specific health care needs. The following list provides general descriptions of each examination items:

1) Comprehensive history and physical
   a. Lifestyle assessment: diet, exercise, alcohol, smoking, disease risks, safety issues
   b. Immunization review
   c. Spirometry, tonometry, audiometry
2) Basic laboratory
3) Cardiovascular screening
   a. Lifestyle assessment, Lipid profile, CRP, homocysteine
   b. EKG, CXR, Electron-beam CT, Carotid Doppler, Abdominal aortic aneurysm screening
4) Cancer screening
   a. Lung CA, Colon CA, Prostate CA. Breast CA, Cervical CA
5) Osteoporosis screening

FINDINGS TO DATE: As of December 2001, we made an agreement with twenty-eight corporations to provide an annual physical examination to their executive employees. During the last twelve months of period, over 400 executives underwent the program. Thus far, feedback comments that we have received from participants and employers are positive such as no waiting time, easy access to renowned medical center, high quality and comprehensive care yet done in one day.

KEY LESSONS LEARNED: It is possible to tailor made a specific executive type of physical program at an academic medical center. This program also provides us an opportunity to conduct research such as assessment of health status among corporate executives, outcome measurements, and quality measurements.

**INNOVATION IN PRACTICE MANAGEMENT: THE MAYO CLINIC DIAGNOSTIC BREAST CENTER.** D.L. Wahner-Roedler[1], R.E. Johnson[1]; [1]Mayo Clinic, Rochester, MN *(Tracking ID #51514)*

STATEMENT OF PROBLEM OR QUESTION: In the past, the care of women with breast diseases has been fragmented in our institution, leading to anxiety and delays in diagnosis of potentially life-threatening breast cancer.

OBJECTIVES OF PROGRAM/INTERVENTION: Develop a practice model that 1. Provides timely, comprehensive breast health care, 2. Reduces anxiety, 3. Provides education and counseling about breast cancer risk factors, prevention, detection, and treatment, 4. Leads to professional stimulation of general internists working in a multidisciplinary medical setting.

DESCRIPTION OF PROGRAM/INTERVENTION: In 1993 a Multidisciplinary Breast Clinic was established under the leadership of a general internist (REJ). The team presently consists of nine female general internists (2.2 full time equivalents [FTEs]), the majority of whom alternate their practice time between the Breast Clinic and their General Internal Medicine in- and out-patient practice. In addition there are two clinical master's level nurse specialists ( CNS; 1 FTE), a nurse practitioner, dedicated breast surgeons, mammographers, radiation therapists, pathologists, and one on-call oncologist.

FINDINGS TO DATE: New patients are initially evaluated in the morning by an internist. Same day mammogram, ultrasound, and core-needle biopsy slots are available. Mammography and ultrasound results are available within two hours and pathology results within 24 hours. Educational and supportive services are provided by the CNS. Same day surgical and radiotherapy consults are provided in the Breast Clinic offices with breast cancer patients having the option of undergoing cancer surgery the following day. The practice has grown from 1543 new patient evaluations, 928 breast clinic surgical and radiation oncology consults, and 469 recheck examinations in 1994, to 1910,852, and 1166, respectively, in 2000.

KEY LESSONS LEARNED: Through the leadership of general internists a multidisciplinary breast center has been developed. Patients have responded enthusiastically to this integrated, multidisciplinary approach. Specifically, they cite the promptness of the diagnostic evaluation, the expertise of various team physicians and nurses, the educational and psychosocial support received and their comfort with the care provided by physicians and nurses (a formal patient satisfaction survey is currently underway). Participating and referring physicians are very satisfied with this model of care.

**GROUP VISITS FOR OSTEOPOROSIS PREVENTION AND SCREENING IN A GENERAL INTERNAL MEDICINE PRACTICE.** V. Weber[1], K. Rankin[1], J. Sim[1]; [1]Geisinger Medical Center, Danville, PA *(Tracking ID #51016)*

STATEMENT OF PROBLEM OR QUESTION: In a typical twenty minute office visit, a multitude of preventive and educational needs must be met. Among these competing needs, osteoporosis risk factor assessment and education are often neglected. As a result, many women with osteoporosis are undetected until symptomatic.

OBJECTIVES OF PROGRAM/INTERVENTION: Group visits provide an alternative to one-on-one physician visits which can increase "face time" with one's physician, enhance patient satisfaction, and improve patient outcomes. Group models are impacting areas such as diabetes and geriatric care in various settings nationally. As a pilot to examine what role this model could play in our practice, we developed an osteoporosis education group visit model.

DESCRIPTION OF PROGRAM/INTERVENTION: Using our computerized patient data base, letters of invitation were sent to female patients over the age of 45. Groups of 6–8 patients were booked into hour long visits. The visits included: 1) A 20 minute lay-oriented slide presentation by the physician, reviewing osteoporosis risk factors, prevention, screening and treatment, 2) Questions/Answers in group overlapping with bone density assessment using heel ultrasound, and 3) One-on-one review with physician of each patient's ultrasound results and risk factor evaluation/modification. Each encounter was documented in the electronic medical record, with results and recommendations sent electronically to each patient's primary physician.

FINDINGS TO DATE: Three sessions have been held to date, attended by a total of 14 patients. The mean age of the patients was 58.57, with a mean age at menopause of 43.7. 57% of patients had at least one risk factor for osteoporosis, including family history of fractures, personal history of fractures, low body weight, current smoking, and history of chronic steroid use. 12/14 patients stated that they had at lease two 30 minute sessions of weight bearing exercise weekly, however less than half received adequate calcium intake or took a multivitamin containing vitamin D. Less than half had received previous or current osteoporosis preventive therapy. None of the patients had ever received previous screening for osteoporosis. Two patients were found to have osteoporosis and begun on therapy. An additional two patients scored in the osteopenic range and were referred for DEXA. All patients and their physicians were made aware of modifiable risk factors and each patient developed a plan to modify those risk factors. Patient satisfaction with the program was high as measured by a post-visit Likert questionaire.

KEY LESSONS LEARNED: Group visits can enhance prevention and screening for osteoporosis in a traditional general internal medicine practice, while increasing patient satisfaction and affording physicians and patients both a step off the "treadmill" of one-on-one visits.

**"THE DOCTOR CAN SEE YOU TODAY:" IMPROVING ACCESS TO CARE IN A TRADITIONAL ACADEMIC INTERNAL MEDICINE PRACTICE.** V. Weber[1], K. Rankin[1], J. Sim[1]; [1]Geisinger Medical Center, Danville, PA *(Tracking ID #51326)*

STATEMENT OF PROBLEM OR QUESTION: Many internal medicine practice systems are well-designed to provide care at the convenience of the clinic and providers, but may not meet the needs of patients. In our clinic, appointments were scheduled months in advance, without patient input, leading to large backlogs of waiting patients, poor provider-patient match for acute medical needs, and a large amount of scheduling rework.

OBJECTIVES OF PROGRAM/INTERVENTION: By converting to an "open access" scheduling system, our goals were to eliminate backlog, increase the percentage of open appointments, decrease the length of time to the third available appointment, and to increase patient involvement in the date and time of appointment.

DESCRIPTION OF PROGRAM/INTERVENTION: A series of steps were undertaken to move the practice toward an open access scheduling process: 1) An initial physician was enlisted to pilot open access; 2) That physician's backlog was eliminated in a stepwise fashion, including measuring and prioritizing backlog, implementing a plan to reduce backlog, and setting start and end dates for backlog elimination; and 3) A target date for open access was chosen. Beginning six weeks prior to that date, all patients asked by the physician to return within six weeks were given an appointment at the time of check-out. All others completed a self-addressed card. At the beginning date for open access, the provider's schedule was empty except for patients asked to return within 6 weeks. Each month the cards were mailed, asking the patients to call for an appointment. When the patients called, they were offered an appointment that day. If the patient did not desire an appointment the same day, they were scheduled at a time of their choosing. The remaining providers were placed on a timeline for backlog elimination with target dates for open access. Each provider chose a method of backlog elimination, including adding clinic sessions, maximizing existing appointment slots, teaming with a midlevel provider, and reexamining return visit intervals.

FINDINGS TO DATE: As of December 2001, 7 of 12 providers had eliminated all backlog and were using the open access system. Two additional physicians are in the backlog elimination phase. The practice will be entirely open access by Spring 2002. For those providers using the open access system, we have increased future capacity from 0% to as much as 48%, reduced the third available appointment from greater than 60 days to less than one week, and increased both patient and provider satisfaction with scheduling.

KEY LESSONS LEARNED: Traditional "front-loaded" scheduling systems create large patient backlogs, poor availability to meet urgent health care needs, and frustrate both providers and patients. Open access creates the ability to provide care when the patient most needs and wants it, which will improve satisfaction and health outcomes.

**IMPROVING THE PROCESS OF CHRONIC DIABETES CARE BY USING NON-VISIT CARE.** R.E. White[1], D. Gray[2], D. Graeber[2]; [1]University of New Mexico, Albuquerque, NM; [2]New Mexico VA Health Care System, Albuquerque, NM *(Tracking ID #51659)*

STATEMENT OF PROBLEM OR QUESTION: Consistently achieving numerous preventive care activities during clinic sessions is difficult because (1) time is limited, (2) the number of recommendations grows, (3) reminders proliferate and distract, and (4) identifying candidate patients is difficult.

OBJECTIVES OF PROGRAM/INTERVENTION: We wanted to improve preventive care of diabetic patients in VA primary care clinics by (1) decreasing our reliance on routine clinic visits for providing care, (2) using a population approach, and (3) exploiting features of a computerized medical record database. Using this database, we identified the diabetic candidates for two services (pneumococcal vaccination and annual eye examinations), and we used telephone contacts, chart reviews, and reminder letters outside of regular visits to accomplish them.

DESCRIPTION OF PROGRAM/INTERVENTION: As of January 30, 2001 our two, similar, non-teaching, primary care teams provided care to 944 (Team A) and to 997 (Team B) diabetic patents. During intervention Phase 1 (March–July 2001), Team A nursing staff contacted those patients needing pneumoccocal vaccine, and B nursing staff contacted those needing eye examinations. During Phase 2 (July–December 2001) the roles were reversed. Five months of pre-intervention data were also available.

FINDINGS TO DATE: During influenza vaccination season prior to our intervention, we administer pneumococcal vaccine to 14.7% (139/944) of Team A diabetic patients, and 12.3% (123/997) of Team B patients. During Phase 1, Team A vaccinated an additional 10% (98/944) of their diabetics, while Team B vaccinated only 1.6% (16/997). In phase 2, Team B vaccinated an additional 5% (49), while Team A vaccinated an additional 7% (69). At the termination of the project only 6% (59) of A and 3% (25) of B patients needed pneumococcal vaccination.

Because eye clinic was backlogged for many months, the best indicator of project impact on preventive eye care was information we sought from patients about their receiving preventive eye visits with non-VA providers. During Team A's eye intervention (Phase 2), they reported 5.2% of their diabetic patients had already received preventive eye care, compared with 2.2% before the intervention and 2.5% during their control phase. Team B determined 7.6% of their patients received outside care during their intervention period (Phase 1), compared to 5.6% pre-intervention and 2.6% during their control phase. For both teams, appointments scheduled into eye clinic were 20% higher in the 6 months following Phase 2 than during Phase 2.
KEY LESSONS LEARNED: Diabetic preventive care can be improved by targeting populations of patients for review outside of regular clinic visits and tracking performance with a computerized record database.

# SCIENTIFIC ABSTRACTS

## CLINICAL EPIDEMIOLOGY

### A POPULATION-BASED STUDY OF PREDICTORS OF HEALTH CARE SEEKING FOR DYSPEPSIA SYMPTOMS.

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BACKGROUND: Dyspepsia is common in the general population and is associated with significant use of health care resources. The predictors of health care use for dyspepsia remain poorly defined. The aim of our study was to determine which symptoms, psychosocial and demographic factors predict health care seeking for dyspepsia among a previously identified random sample of Olmsted County, Minnesota residents with dyspepsia.
METHODS: This was a retrospective study of health care delivered to subjects with dyspepsia identified from a population survey. The Bowel Disease Questionnaire (BDQ) was mailed to a random sample of Olmsted County residents between 1988 and 1990. Of the 835 survey respondents, 213 subjects (mean age 47 years, 48% female) reported symptoms of dyspepsia according to the Rome Criteria. In the current study, medical records of dyspeptic subjects who had given research authorization were reviewed to identify physician visits for dyspepsia symptoms 10 years before and after the date each subject completed the BDQ. The association between physician consultation for dyspepsia and self reported symptoms, psychosocial, demographic factors was evaluated by fitting logistic regression models.
RESULTS: Of 206 subjects with dyspepsia, 24 (11%) had physician consultation for dyspepsia symptoms one year before or after the BDQ survey. Over 20 years, 98 (46%) had at least one physician consultation for dyspepsia symptoms, most (72%) with primary care physicians. Fifty-six percent of patients with frequent epigastric pain (pain > 6 times in a year) sought care compared to 34% of patients with infrequent epigastric pain (P < 0.05). Patients whose symptoms could be categorized as ulcerlike, dysmotilitylike, or refluxlike sought care 30% more often than those with unspecified dyspepsia symptoms (P < 0.05). Patients with a higher total gastrointestinal (GI) symptom score were more likely to have sought care for dyspepsia symptoms (OR = 2.0 per 1 unit increase, 95% CI: 1.5 – 2.6). The GI symptoms score was derived as the sum of the mean score for "how often" and the mean score for "how bothersome" each subject rated 5 different GI complaints on a 5-point scale (0 = not a problem to 4 = occurs daily or extremely bothersome when it occurs). Age, education level and employment status were not significantly associated with health care seeking for dyspepsia symptoms.
CONCLUSION: Most data on health care seeking for dyspepsia have been derived from studies relying on self-report questionnaire. This is the first study linking population-based data on symptoms reporting with the clinic data on health care seeking. Symptom severity, frequency and pattern (e.g. acidlike, dysmotilitylike etc.) are important factors in determining health care seeking for dyspepsia.

### WORKERS' COMPENSATION FOR BACK PAIN: A PILOT STUDY OF PRIMARY CARE INVOLVEMENT AND OUTCOMES.

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BACKGROUND: Back pain is a common reason for a visit to a primary care provider (PCP). Though little is known about how often PCPs direct the care of patients receiving workers' compensation (WC) and how outcomes compare to the care of other providers, it is reported that about half of patients with WC are treated by PCPs and that these patients have inferior disability outcomes.
METHODS: Retrospective case series of adult patients seen in 4 hospital affiliated PCP practices in 1996 to 1998. From a database of 68,710 individuals with a PCP practice visit, 113 with a work-related back claim filed in 1997 or 1998 were identified by searching on social security number in a WC claims database. The final study cohort included 87 patients with at least 1 documented PCP practice visit during the study period (26 were excluded after claims review because the injury was not primarily back-related). MGH records were reviewed to assess past medical history, the extent of prior PCP contacts for any visits before and for 2 years after the date of the WC injury, and detailed information on back-related visits. Disability outcomes (total costs and days of disability) were obtained from the WC database.
RESULTS: Among the 87 patients, 48 (55%) had visits to the PCP practice before and after the date of injury; 19 (22%) were seen only before and 20 (23%) were only seen after. Patients with prior visits were seen on average 12 times (median 4) with the initial visit 4.6 years (median 2.8) before the injury date. The most recent visit was on average 11 months (median 7.7) before the injury date. Only 34 patients (39%) had a back-related visit to the PCP practice after the injury date, and 20 (23%) had more than 1 visit. The first post-injury visit to the PCP was on average 180 days (median 47.5) after the injury. Twenty of 34 patients (59%) had already seen another physician prior to the PCP visit. Patients with visits to the PCP had higher costs and longer duration of disability.
CONCLUSION: Many individuals with a WC claim do not have a stable PCP relationship around the time of their injury. Patients with WC claims for back pain uncommonly involve their PCP, and if they do it is usually because of persistent symptoms. The greater costs and disability associated with PCP involvment likely reflect confounding based upon duration of symptoms, not deficiencies in quality of care.

### TRICUSPID VALVE ENDOCARDITIS CAUSED BY GROUP B STREPTOCOCCI IN A 26-YEAR-OLD FEMALE.

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BACKGROUND: Infective Endocarditis is commonly caused by Viridans Streptococci and Staphylococci especially in middle aged or older population who have predisposing valvular defects. We report a case of young female with native tricuspid valve endocarditis following therapeutic abortion.
METHODS: A Case report of a young female who presented to Cleveland Clinic Foundation in November 2001.
RESULTS: A 26-year-old female was referred from an outside hospital with a two week history of fever and chills. Blood culture was positive for Group B streptococcus in all three samples. She had a protracted hospital stay complicated by pulmonary emboli, intubation and finally required tricuspid valve replacement (figure 1: Hs tricuspid valve leaflet demonstrating a large vegetation). She later admitted to having undergone an abortion recently.

CONCLUSION: An internist needs to be aware of group B streptococcus (GBS) leading to endocarditis in females undergoing abortion and child birth since it may lead to severe complications if not treated promptly .Current literature on GBS is reviewed and its implications withrespect to antibiotic sensitivity and surgical options are also discussed.

### OVERPRESCRIBING OF ORAL ANTIBIOTICS FOR UPPER RESPIRATORY INFECTIONS IN A MEDICAID MANAGED CARE PROGRAM.

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BACKGROUND: Although inappropriate antibiotic use (overprescribing) in upper respiratory tract infections (URIs) has been demonstrated in many settings, the extent of this practice in the Tennessee Medicaid managed care program (TennCare) is unknown. Furthermore whether this practice changed between a Medicaid Fee-for-Service and Medicaid Managed Care has not been described.
METHODS: Sequential cross-sectional analysis of pharmacy and outpatient claims from Tennessee Medicaid (1993) and TennCare (1995, 1999) enrollees was performed. Patients with URIs were identified using ICD-9 codes from outpatient claims that were linked to pharmacy claims for an antibiotic prescription within 2 days of the office visit. Using methods endorsed by the CDC, ICD-9 codes were used to determine the appropriateness of antibiotic use. We determined proportions of appropriate and inappropriate use by year and used multivariate logistic regression to determine patients' geographic and demographic characteristics with inappropriate antibiotic use.
RESULTS: In each study year, approximately 10% of the continuously eligible enrollees had at least one office visit coded with one of the URI diagnosis codes. The proportion of URI-related visits associated with an antibiotic prescription was 93.7% (1993), 82.1% (1995), and 90.0% (1999). The proportion of visits with an ICD-9 code indicating a potentially inappropriate indication associated with antibiotic use was 78.6% (1993), 84.2% (1995), 74.1% (1999).
Multivariate analysis revealed that males, non-whites, and persons aged ≥ 45 years were most likely to receive an antibiotic prescription associated with an inappropriate ICD-9 code for each year. There was not a clinically significant change between Medicaid Fee-for-service and TennCare for apparent inappropriate antibiotic use.
CONCLUSION: Apparent inappropriate antibiotic use for URIs is common in Tennessee Medicaid patients and those in the managed care successor program with no change observed

in this practice between the programs. The rates are consistent with other large-scale studies. Further research is needed to determine why certain demographic groups are at higher risk for receiving these prescriptions.

**B-TYPE NATRIURETIC PEPTIDE AND EXERCISE-INDUCED ISCHEMIA AMONG PATIENTS WITH STABLE CORONARY HEART DISEASE: THE HEART AND SOUL STUDY.**
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BACKGROUND: B-type natriuretic peptide (BNP) is a cardiac neurohormone that is elevated in patients with left ventricular (LV) dysfunction. Assays for BNP have recently been approved for the diagnostic work-up of heart failure in the US and in Europe, and the European Heart Failure Society recommends measuring BNP in patients with suspected LV dysfunction. Whether BNP levels are elevated in other cardiac disease is unclear. We evaluated the association between BNP levels and exercise-induced ischemia among patients who have stable coronary heart disease (CHD) without LV dysfunction.
METHODS: Between 9/00 and 11/01, we recruited 450 patients with stable CHD from the VA Medical Center and University of California, San Francisco for the Heart and Soul Study, a prospective cohort study investigating how psychosocial factors influence the outcomes of patients with CHD. BNP levels were measured on stored blood samples drawn after patients completed an overnight fast and a 30-minute supine rest. Participants subsequently completed exercise treadmill testing with stress echocardiography. Those with a resting ejection fraction (EF) less than 50% were exluded. We assayed BNP levels in the 89 patients who had exercise-induced ischemia and in 155 control patients who did not have exercise-induced ischemia by stress echocardiography. We used logistic regression to determine the risk of ischemia associated with quartiles of BNP.
RESULTS: Participants with exercise-induced ischemia had higher mean BNP levels compared with controls (95.7 pg/ml vs. 64.0 pg/ml, p = 0.01). Of the 61 participants in the highest quartile of BNP (>104 pg/ml), 32 (52%) had ischemia by exercise echocardiography, compared with 18 (30%) in the lowest quartile of BNP (<17.3 pg/ml) (p = 0.03). Compared with participants in the lowest quartile of BNP, those in the highest quartile of BNP had a substantially increased odds of exercise-induced ischemia, adjusted for age, race, sex, comorbid conditions, EF, creatinine clearance, and left ventricular mass index (OR = 2.6, 95% CI 1.2 – 5.8, p = 0.02). Using the stress echocardiogram as a gold standard, a BNP level greater than 104 pg/ml had a 36% sensitivity and a 81% specificity for detecting exercise-induced ischemia.
CONCLUSION: BNP is associated with exercise-induced ischemia in CHD patients, suggesting that cardiac neurohormones are activated among patients who develop stress-induced ischemia, even in the absence of LV dysfunction. These results contribute to our understanding of the pathophysiology of myocardial ischemia, and have important implications for diagnostic algorithms in patients with CHD.

**DISPERSIONS OF DECISION-MAKING THRESHOLDS AMONG JAPANESE GENERALISTS.**
S. Bito[1], S. Matsumura[2], A. Asai[3], K. Hira[3], K. Hayano[4], K. Maeda[3], S. Yamashiro[5], T. Fukui[3]; [1]National Toyko Medical Center, Tokyo, Japan; [2]The University of Tokyo, Tokyo, Japan; [3]Kyoto University, Kyoto, Japan; [4]Kumamoto University, Kumamoto, Japan; [5]Saga Medical School, Saga, Japan *(Tracking ID #51338)*

BACKGROUND: Evidence-based medicine relies on quantification for estimating the physicians' clinical decision-making and behavior. Little is known about how decision-making thresholds for diagnostic testing or treatment are standardized.
METHODS: We conducted a cross-sectional questionnaire survey on the participants attending the Annual Meeting of the Japanese Society of General Medicine. In the questionnaire, we asked about the disease probabilities on which the respondents felt that they should order CAT scan or MRI for detecting space occupying lesions (TEST decision) using scenarios of patient with chronic headache. We also asked the disease probabilities on when they should start antibiotics treatment, using scenarios of suspect meningitis (TREAT decision) Then we asked about the probabilities on which they actually take actions (TEST action and TREAT action) using the same scenarios. We employed 6-ranked response choices for identifying threshold probabilities. Physician characteristics, facility resources, and clinical experiences were also queried.
RESULTS: 141 subjects responded (Response rate 67.5%). Concerning the TEST decision, 16% of the respondents answered they will order CAT scan or MRI on "all cases". 15% indicated, "if I think the disease probability is 1 – 5%", and 14% answered "50% or over". Concerning TREAT decision, 16% answered they will start antibiotics therapy on "all cases" whereas 22% answered "50% or over". Physician characteristics, facility resource or clinical experiences did not show significant associations with both of the TEST and the TREAT decisions. Twenty-eight percent of the respondents reported different probability thresholds for their TEST decision and TEST action, and 31% did for their TREAT decision and TREAT action. Both for TEST and TREAT decisions, disease probabilities for which they actually took action were lower than those for which they thought they should do so.
CONCLUSION: Decision-making thresholds for diagnostic testing and treatments considerably vary among Japanese generalists; these thresholds should be standardized.

**TOTAL CHOLESTEROL AS A RISK FACTOR FOR ISCHEMIC STROKE.**
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BACKGROUND: Observational studies have not demonstrated a consistent relationship between total cholesterol and stroke. Recent statin trials have shown a decrease in ischemic strokes when cholesterol levels are reduced. We analyzed data from the Physicians' Health Study to evaluate the relationship between total cholesterol and the risk of ischemic stroke in men.
METHODS: Using a nested case-control study design, there were 298 cases of ischemic stroke with an equal number of controls matched on age and tobacco use. Baseline characteristics were collected, and we measured serum total cholesterol in cases and controls. The relative risks (RRs) and 95% confidence intervals were computed using conditional logistic regression adjusting for clinical risk factors.
RESULTS: The mean total cholesterol for crude matched analysis was 231.9 (± 51.2) for cases and 228.7 (± 46.3) for controls (p = 0.42). RR's were calculated for total cholesterol level, using quartiles and clinically relevant cutpoints.
CONCLUSION: Total cholesterol was not strongly associated with risk of ischemic stroke. This study supports the idea that total cholesterol is not a significant risk factor for ischemic stroke. The consistent reduction in ischemic stroke rate in statin trials may be due to effects other than reductions in total cholesterol.

**Cholesterol Quartiles**

| | Crude RR | Adjusted RR |
|---|---|---|
| <194 | 1.00 (ref) | 1.00 (ref) |
| 194 – 227 | 1.43 (0.91 – 2.27) | 1.54 (0.85 – 2.76) |
| 228 – 257 | 1.01 (0.60 – 1.69) | 1.10 (0.58 – 2.12) |
| ≥258 | 1.15 (0.68 – 1.96) | 1.56 (0.79 – 3.11) |
| test of trend | p = 0.97 | p = 0.42 |

**Clinical Cutpoints**

| | Crude RR | Adjusted RR |
|---|---|---|
| <200 | 1.00 (ref) | 1.00 (ref) |
| 200 – 239 | 1.23 (0.80 – 1.87) | 1.42 (0.83 – 2.45) |
| ≥240 | 1.09 (0.70 – 1.71) | 1.40 (0.79 – 2.48) |
| test of trend | p = 0.76 | p = 0.30 |

**THE ASSOCIATION BETWEEN GESTATIONAL DIABETES AND PREGNANCY INDUCED HYPERTENSION.**
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BACKGROUND: Pregnancy induced hypertension (PIH), including eclampsia, preeclampsia, and gestational hypertension, as well as gestational diabetes mellitus (GD) are both common antepartum diseases. Previous reports have suggested an association between diabetes mellitus and hypertension in adults, but this relationship has not been well characterized in pregnancy.
METHODS: We conducted a population based case-control study using Washington State birth certificates linked to hospital discharge data from the birth hospitalization to further define this relationship. Four PIH case group based on ICD-9 codes were defined: eclampsia (n = 154), severe preeclampsia (n=1,180), mild preeclampsia (n = 5,468), and gestational hypertension (n = 8,943). Cases were compared with a control group (n = 47,237) that was free of hypertension and frequency matched to the cases by year of birth.
RESULTS: The prevalence of GD was increased among each of the PIH groups, being present in 3.9% of women with eclampsia (adjusted odds ratio, OR, 1.2; 95% Confidence Interval, CI, 0.5 – 3.0), 4.5% of preeclampsia (OR, 1.6; 95% CI, 1.2 – 2.1), 4.4% of mild preeclampsia (OR, 1.5; 95% CI, 1.3 – 1.8); and 4.4% of women with gestational hypertension (OR, 1.4; 95% CI, 1.2 – 1.6) as compared to 2.7% of controls. However, this relationship was more pronounced for eclampsia among women receiving low levels of prenatal care (OR = 3.3, 95% CI 1.0 – 11) and was not increased among women receiving high levels of prenatal care (OR = 0.7, 95% CI 0.2 – 2.9).
CONCLUSION: Assuring adequate prenatal care for all women may decrease the risk of eclampsia associated with GD.

**MENTAL HEALTH DIAGNOSTIC PATTERNS IN A RURAL STATE.**
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BACKGROUND: In rural states with mental health provider shortage areas, the burden for the diagnosis and treatment of mental disorders may fall to primary care providers. This study was conducted to determine if initial psychiatric diagnostic claims differed between urban and rural dwellers and whether provider type influences diagnostic labeling.
METHODS: Wellmark Blue Cross/Blue Shield of Iowa inpatient and outpatient claims data from 1989 – 1993 were analyzed. Ten of the state's 99 counties were defined as urban based on statistical metropolitan service areas definitions. Initial claims for mental disorders made by primary care providers (general internists, family physicians, general practitioners) and mental health specialists (psychiatrists, psychologists, clinical social workers) were compared. Mental health diagnoses were categorized by linking ICD-9 codes to DSM III-R major classifications (e.g. Mood Disorders) based on a mapping algorithm we developed.
RESULTS: 813,662 persons age >17 years were assessed. Thirteen percent of the covered population (n = 106,073) had at least one mental health claim. Over half (54%) of the initial mental health claims were for rural dwellers. Fifty-one percent of all initial psychiatric diagnostic claims for rural dwellers were filed by primary care providers, versus 43% of all initial mental health claims for urban dwellers. The most commonly diagnosed conditions occurred at slightly different frequencies between urban and rural dwellers.
CONCLUSION: Slightly more than half of all initial mental health claims in an insured population are made for rural dwellers. Rural dwellers may be more likely than urban dwellers to be diagnosed with mood, adjustment, anxiety, and somatoform disorders. Provider type may influence the initial mental health diagnostic categorization. This data reflects the significant role that primary care providers play in the diagnosis of mental disorders.

**MORTALITY AND MORBIDITY IN PATIENTS WITH VERY LOW POSTOPERATIVE HEMOGLOBIN LEVELS WHO DECLINE BLOOD TRANSFUSION.** 
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BACKGROUND: Most guidelines for allogeneic transfusion emphasize minimizing use to avoid transmission of serious illness. However, there is little information available describing the risks associated from withholding transfusion especially in patients with very low blood counts.
METHODS: We performed a retrospective cohort study of surgical patients who declined red blood cell transfusions for religious reasons. We analyzed consecutive patients >18 years old included in two pre-existing cohorts of patients who underwent surgery in the operating room from 1981 – 1994. We restricted this analysis to consecutive patients with a postoperative hemoglobin count of 8 g/dL or less. The primary outcome was defined as any in-hospital death occurring within 30 days of the surgery. Secondary outcome was 30 day mortality or in-hospital 30 day morbidity. Morbidity was defined as myocardial infarction, arrhythmia, congestive heart failure, or infection. We adjusted for potential confounders using logistic regression.
RESULTS: Of the 2,083 consecutive patients eligible for the study, 300 had a postoperative hemoglobin counts of 8 g/dL or less. The study population was predominantly female (70.3%) with mean age of 57 (standard deviation + 17.7). The site of the surgical procedure was either aortic, intrathoracic, or intraperitoneal in 65% of patients. The death rate rose as hemoglobin levels fell (p for trend <0.01). In patients with postoperative hemoglobin level 7.1 – 8.0, 0 died (upper 95% confidence interval, 3.7%), and 9.4% (95% confidence interval, 4.4% – 17.0%) had a morbid event. In patients with postoperative hemoglobin level 4.1 – 5.0, 34.4% (95% confidence interval, 18.6% – 53.2%) died and 57.7% (95% confidence interval, 36.9% – 76.6%) had a morbid event or died . After adjusting for age, cardiovascular disease, and APACHE II score, the odds of death in patients with postoperative hemoglobin levels of <8 g/dL increased 2.5 times (95% confidence interval 1.9 – 3.2) for each gram decrease in hemoglobin level.
CONCLUSION: The risk of death was low in patients with postoperative hemoglobin 7.1 – 8.0 g/dL, although morbidity occurred in 9.4%. As postoperative blood counts fall the risk of mortality and/or morbidity rises and becomes extremely high below 5 – 6 g/dL. Bloodless surgery caries substantial risk with very low hemoglobin levels. There is a hemoglobin level below which adequate compensation for reduced oxygen-carrying capacity is no longer adequate, leading to very high risk of ischemia and eventual death.

**ASSOCIATION BETWEEN CIGARETTE SMOKING AND GLYCEMIA AMONG HEALTHY ADULTS IN THE UNITED STATES: EVIDENCE FROM THE THIRD NATIONAL HEALTH AND NUTRITIONAL EXAMINATION SURVEY.** 
K.D. Chandra[1], I.E. Okosun[1]; [1]Mercer University School of Medicine, Macon, GA *(Tracking ID #52359)*

BACKGROUND: Although evidence linking smoking and elevated glycemia is well established, the variations in different ethnic/racial groups are not known. The objective of this study is to examine the association between smoking with ethnic/racial variations in glycemia estimated from the glycated hemoglobin (HbA1c) levels in healthy non-Hispanic White, non-Hispanic Black, and Hispanic Americans. We also sought to determine the contribution of smoking to the risk of hyperglycemia in these population groups.
METHODS: Data (N = 11,193) from the third United States National Health and Nutritional Examination Survey were utilized for this study. Hyperglycemia was defined using emperical quartile values of glycated hemoglobin of 6.4 or greater and 6.3 or greater for men and women respectively. Smoking status was determined by any number of cigarettes smoked in the past five days. Linear regression was performed to determine the association between smoking and glycemia by race and ethnicity. Logistic regression analysis was used to determine the risk of hyperglycemia due to smoking. The public health consequences of smoking for hyperglycemia were estimated using population attributable risk. Statistical adjustments were made for age, alcohol consumption and body mass index (BMI).
RESULTS: The estimated prevalence of hyperglycemia in men was 33.7%, 50.4%, and 35.8% for Whites, Blacks, and Hispanics, respectively. The corresponding values in women were 26.2%, 39.6%, and 28.1%. In white men and women smoking was independently and significantly associated with elevated glycated hemoglobin controlling for age, alcohol intake and body mass index (p < 0.001). In both men and women, elevated body mass index(BMI) and increased age were independently and significantly associated with elevated glycated hemoglobin (p < 0.001). In white men and women, smoking was associated with more than 2-fold increased odds of hyperglycemia. The population attributable risk of hyperglycemia due to smoking was 49.7%, 19.8%, and 20.9% in White, Black and Hispanic men respectively. The corresponding values in women were 47.7%, 16.9%, and 18.1%.
CONCLUSION: There was a positive association between smoking and glycemia among healthy White, Black, and Hispanic adults in the United States. The risk of hyperglycemia due to smoking was higher among Whites compared to Black and Hispanic adults in the United States. Smoking cessation may reduce the risk of hyperglycemia in all the three ethnic/racial groups. Public health efforts on smoking cessation should continue and target high risk population.

**BLOOD PRESSURE MEASUREMENT VARIABILITY.** 
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BACKGROUND: The Dinamap automated oscillometric device (OD) for blood pressure (BP) measurement is widely used in epidemiological studies because of ease of usage and because it eliminates observer variability. OD usage has also spread into intensive care units, operating rooms, medical transports, and other settings requiring non-invasive monitoring. Nevertheless, little is known about sources of non-biological variability in BP observations using this or other ODs. The purpose of this study was to quantify the variability in observed BP associated with the Dinamap monitor and to determine what factors might contribute to that variability.
METHODS: We obtained 30 simultaneous paired BP measurements in both arms at one minute intervals in each of 30 young healthy subjects using 3 separate Dinamap PRO 100 devices allocated to arm and subject according to a balanced incomplete block design. The between arm differences in BP measurements were analyzed using a mixed effects linear regression model that included terms for BP level, systematic differences in BP between right and left arm, subject-specific variation in these differences, differences in measurements by different devices, and sequence (earlier vs. later BP measurements).
RESULTS: A total of 900 paired blood pressure measurements was obtained. Mean age (SD) of the sample was 28.3 (3.9) years. Seventy-three percent were female and 93% were right-handed. The percentile distributions of the differences between BP pairs are shown in the table. The percentage of the total variability in the observed BP due to device variability was 71% for systolic and 68% for diastolic BP; the other measured effects combined accounted for the remainder.
CONCLUSION: The majority of non-biological variability in BP measurements using the Dinamap was due to device variability. Fifty percent of paired measurements agreed within 4 mmHg (systolic) or 3 mmHg (diastolic). Adjustment for factors other than device variability had relatively small impact on these findings.

**Absolute Values of Arm Differences (mmHg), Unadjusted and Adjusted for Blood Pressure Level, Arm, Subject, Device, and Sequence**

| Percentile | SBP | SBP-adjusted | DBP | DBP-adjusted |
|---|---|---|---|---|
| 5th | 0 | 0.3 | 0 | 0.2 |
| 10th | 1.0 | 0.5 | 0 | 0.4 |
| 25th | 2.0 | 1.3 | 1.0 | 1.0 |
| 50th | 4.0 | 3.1 | 3.0 | 2.5 |
| 75th | 7.0 | 5.9 | 6.0 | 4.4 |
| 90th | 12.0 | 9.5 | 9.0 | 7.0 |
| 95th | 15.0 | 13.2 | 11.0 | 9.3 |

**PREVALENCE OF HEPATITIS C IN A SAMPLE OF CALIFORNIA PRISON INMATES.** 
R.K. Fox[1], S. Currie[1], T.L. Wright[1], L. Tobler[2], P. Dailey[3], B. Phelps[3], N. Moss[1], M. Busch[2], K. Page Shafer[1]; [1]University of California, San Francisco, San Francisco, CA; [2]Blood Centers of the Pacific, San Francisco, CA; [3]Chiron, Emeryville, CA *(Tracking ID #51777)*

BACKGROUND: The hepatitis C virus (HCV) epidemic has extended into the correctional population where a high proportion of inmates originate from high-risk environments. We designed a comprehensive study of HCV in the California correctional institutions beginning with a seroprevalence study of HCV among inmates upon entrance.
METHODS: We recruited a consecutive cross-sectional sample of inmates at 3 California reception centers. We conducted demographic and risk factor interviews, tested and confirmed blood samples for HCV antibody (anti-HCV) using 3rd generation assays. Anti-HCV negative samples were tested for HCV RNA to detect viremic seronegative (incident) infections (Chiron/GenProbe).
RESULTS: 472 subjects consented. Prevalence was 34% (95% CI, 30 – 38) and was significantly increased with age and among Whites (47%) compared to African-Americans (19%) (p < 0.001). The other/mixed ethnicity contains those who reported more than one or other categories. 32% of 353 men were positive and 39% of 119 women were positive (p = 0.20). One incident infection was detected in a 22 yo female.
CONCLUSION: 34% of inmates entering the correctional system test positive for HCV. We found that African-Americans had the lowest prevalence of anti-HCV. RNA testing suggest that the vast majority of HCV infections in prisons represent established rather than incident infections.

**Table 1. Prevalence and Demographics of Anti-HCV in 3 California Prisons**

| Characteristic | No. Tested | Anti-HCV n (%) | 95% CI(%) |
|---|---|---|---|
| All subjects | 472 | 160 (34) | (30 – 38) |
| Race/Ethnicity | | | |
| White | 129 | 60 (47) | (38 – 55) |
| Black | 110 | 20 (19) | (11 – 26) |
| Latino | 149 | 53 (36) | (28 – 43) |
| Other/mixed | 84 | 32 (32) | (22 – 42) |
| Age | | | |
| ≤30 | 161 | 25 (16) | (10 – 21) |
| 31 – 40 | 175 | 60 (34) | (27 – 43) |
| 41 – 50 | 113 | 60 (53) | (44 – 62) |
| ≥51 | 19 | 11 (58) | (33 – 82) |

**USE OF PHARMACOGENETICS AND CLINICAL FACTORS TO PREDICT THE MAINTENANCE DOSE OF WARFARIN.** 
B.F. Gage[1], C. Eby[1], G. Banet[1], P. Milligan[1], H. Mcleod[1]; [1]Washington University in St. Louis, St. Louis, MO *(Tracking ID #51848)*

BACKGROUND: Knowledge of pharmacogenetics could help clinicians predict their patients' therapeutic dose for many drugs. Inability to predict the maintenance warfarin dose contributes to the high rate of adverse events during warfarin initiation. Our objective was to develop an algorithm that uses genetic, clinical, and demographic factors to estimate the warfarin dose a priori.
METHODS: From 297 participants who were taking a maintenance dose of warfarin, we collected a blood sample, demographic variables, laboratory values, exercise habits, smoking status, names of medications, and a dietary history. Using polymerase chain reaction (PCR), we genotyped each participant for the presence of two polymorphisms in the cytochrome P450 2C9 system that are known to decrease the metabolism of warfarin — CYP 2C9*2 and CYP 2C9*3. Using multiple regression, we quantified the association between warfarin dose and all of the factors.
RESULTS: Advanced age, lower body surface area (BSA), and the presence of either polymorphism were strongly associated (P < 0.001) with lower warfarin dose: the maintenance dose decreased by 9% per decade of age, by 15% per 0.25 m2 increase in BSA, by 19% for each

CYP 2C9*2 allele, and 33% for each CYP 2C9*3 allele. Warfarin doses were 25% lower in patients who took amiodarone, 16% lower in patients whose target INR was 2.5 rather than 3.0, and 13% lower in white rather than African-Americans participants ($P < 0.05$ for these comparisons). An algorithm that includes these 7 factors explained 39.5% of the variance in the maintenance warfarin dose ($R2 = 0.395$). The proportion of patients who would be overdosed significantly (>2 mg/day) during initiation with a daily warfarin dose of 5 mg could be approximately halved by use of the dosing algorithm.
CONCLUSION: The maintenance warfarin dose can be estimated from demographic, clinical, and pharmacogenetic factors that could be obtained at the time of warfarin initiation. Use of the flexible-dosing algorithm has potential to decrease adverse events in patients starting warfarin therapy.

**PREDICTING PERIOPERATIVE CARDIAC DEATH IN NON-CARDIAC SURGERY.**
K. Gilbert[1], B.J. Larocque[1]; [1]University of Western Ontario, London, Ontario, Canada *(Tracking ID #51442)*

BACKGROUND: The prediction and consequences of perioperative cardiac complications has been an area of investigation for over 25 years. Although non-fatal complications, particularly MI, are associated with important long-term clinical outcomes, less attention has been given to the specific prediction of perioperative cardiac mortality. The purpose of this study was to determine the variables most closely associated with perioperative cardiac death and to attempt to define a subgroup of patients with a very low predicted likelihood of cardiac death.
METHODS: 2035 patients undergoing non-cardiac surgery and referred for medical consultations were evaluated prospectively. Charts of patients who expired were later reviewed to attempt to determine cause of death. Cardiac death was defined as death associated with another cardiac event (MI, acute pulmonary edema, unstable angina), or sudden death of unknown cause.
RESULTS: Complete data were available on 2017 patients. There were 47 total deaths, 28 of which were deemed to be cardiac. Using logistic regression analysis, 5 variables were found to be independently associated with cardiac death: CCS rating of angina, suspected critical aortic stenosis, emergency surgery, age over 70, and type of planned surgery (a. major vascular, b. thoracic, abdominal, orthopedic, head & neck, c. minor/other). A simple point-score system was developed from these variables. The probability of cardiac death among six groups of patients (based on point score) ranged from 0.1% to 25%. The area under the resultant ROC curve was 0.87 (95% CI: 0.81 – 0.93). There were 1158 patients in the lowest risk category, only one of whom died of a cardiac cause.
CONCLUSION: Using simple clinical variables, it is possible to predict patients' risk for perioperative cardiac death with a reasonable degree of accuracy. Importantly, patients in the lowest risk category have only a 0.1% predicted probability of cardiac death, and these comprised 57% of patients studied. Patients and surgeons may find this information to be useful when planning non-cardiac surgery. This model should be evaluated further to determine its generalizability.

**PATTERNS OF BREAST AND CERVICAL CANCER SCREENING IN THE US DIALYSIS POPULATION.**
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BACKGROUND: Guidelines exist for age-appropriate breast and cervical cancer screening in the general population. Whether these screening policies should extend to patients with end-stage renal disease (ESRD) has been debated. In the absence of formal recommendations, we hypothesized that physicians exercise clinical judgment in screening decisions. We tested this by examining whether screening rates were lowest in the sickest ESRD patients who might derive the least benefit from cancer screening.
METHODS: This prospective study of a national cohort of prevalent ESRD patients used demographic and clinical data from US Renal Data System (USRDS) Dialysis Morbidity and Mortality Study Waves 1, 3, and 4. Two subgroups of women were analyzed for completion of screening tests: Pap smear-eligible cohort aged 18 – 70 years followed over 3 years (1994 – 1996), Mammogram-eligible cohort aged 50 – 70 years followed over 2 years (1994 – 1995). All patients were undergoing hemodialysis during 1993. We stratified each cohort into quintiles of mortality risk with a previously validated clinical case mix model and focused on the 'healthiest' and 'sickest' quintiles. Receipt of a mammogram or Pap smear in accordance with US Preventive Services Task Force guidelines was determined using Medicare Physician/Supplier (Carrier File) and outpatient claims. Survival analyses and cancer screening probabilities for each quintile were calculated using the SAS Lifetest procedure.
RESULTS: There were 3,456 women in the mammogram-eligible cohort and overall, 25.2% received at least one mammogram. Of the 4,970 women eligible for Pap smear testing, 11.4% had a Pap smear performed. Quintile-specific results for screening rates and 6-year survival are presented in the table below. Differences across quintiles in both mammogram and Pap smear rates were statistically significant at $p < 0.001$.
CONCLUSION: Rates of breast and cervical cancer screening are low in ESRD patients, even among the healthiest patients with the longest life expectancies. Although there are differences in screening rates in the healthiest versus sickest subgroups, these are small compared to the significant survival disparities. These patterns suggest that physicians are not effectively incorporating clinical assessments into screening decisions or successfully targeting those ESRD patients who might benefit the most from these tests.

**Quintile-Specific Results**

| Quintile | Mammogram Cohort Screening Rate | Mammogram Cohort 6-year Survival | Pap Smear Cohort Screening Rate | Pap Smear Cohort 6-year Survival |
|---|---|---|---|---|
| Healthiest | 37.3% | 52.3% | 19.2% | 67.5% |
| Sickest | 24.6% | 8.6% | 10.1% | 10.0% |

**D-DIMER ASSAYS FOR DEEP VENOUS THROMBOSIS: A SYSTEMATIC REVIEW.**
S.W. Heim[1], JT Philbrick[1]; [1]University of Virginia, Charlottesville, VA *(Tracking ID #50569)*

BACKGROUND: D-dimer testing is widely used to rule out lower extremity deep venous thrombosis (DVT). This systematic review synthesizes the best available evidence on this topic.
METHODS: All English language studies published since 1995 comparing newer rapid d-dimer assays to either venography (VG) or ultrasound (US) were identified. Using previously published criteria we performed a methodologic review and excluded 7 studies with potential spectrum bias, ascertainment bias, or poorly described patient assembly. The 19 remaining studies were included in this review.
RESULTS: The study settings were inpatient (n = 1), emergency departments (n = 5), or referrals to radiology or special venous thromboembolism services (n = 13). There was variation among the studies in exclusion criteria, gold standards (7 US, 7 VG, and 5 both), and assay cutpoints. We found large variability in prevalence, test characteristics, and exclusion rate (defined as true negative plus false negative rate) among studies (Table). The variability could not be explained by study setting, gold standard, or assay cutpoints. Heterogeneity of study subjects precluded quantitative summary statistics.
CONCLUSION: Reported diagnostic test indices of the newer rapid d-dimer tests for the evaluation of patients with suspected DVT vary considerably among studies. Although assay cutpoints were routinely selected to maximize sensitivity, negative predictive values frequently were below 90%. More research is needed to establish the clinical role of d-dimer testing.

**Test Characteristics: Range (Median), %.**

| Assay Name | Method | Prev. | Sensitivity | Specificity | NPV | Exclusion Rate |
|---|---|---|---|---|---|---|
| simpli-RED | RBC agglut. | 21 – 68 (28) | 56 – 94 (80) | 47 – 94 (76) | 52 – 97 (89) | 29 – 74 (56) |
| Minutex | Latex agglut. | 38 – 52 (51) | 80 – 96 (95) | 57 – 90 (59) | 81 – 96 (92) | 31 – 54 (37) |
| Tinaquant | Latex agglut. | 44 – 68 (51) | 98 – 100 (100) | 33 – 56 (39) | 93 – 100 (97) | 11 – 32 (19) |
| VIDAS | Rapid ELISA | 21 – 68 (44) | 95 – 100 (98) | 17 – 82 (43) | 91 – 100 (99) | 6 – 60 (25) |
| Instant IA | Immuno-filtration | 24 – 59 (52) | 88 – 95 (93) | 19 – 94 (56) | 76 – 98 (86) | 14 – 73 (32) |
| Nycocard | Immuno-filtration | 24 – 52 (51) | 80 – 100 (95) | 0 – 80 (38) | 0 – 96 (88) | 0 – 63 (21) |

**A PREDICTION RULE FOR TERMINALLY ILL CANCER PATIENTS ON LABORATORY DATA.**
K. Hira[1], N. Aoki[2], A. Hayashi[3], J. Demsar[4], B. Zupan[4], T. Fukui[5], K. Dunn[1], W.J. Schull1[1]; [1]Schull Institute, Houston, TX; [2]Information Research and Planning/ Department of Medicine, Baylor College of Medicine, Houston, TX; [3]Japan Baptist Hospital, Kyoto, Japan; [4]Faculty of Computer and Information Science, University of Ljubljana, Ljubljana, Slovenia; [5]Department of General Medicine and Clinical Epidemiology, Kyoto University Graduate School of Medicine, Kyoto, Japan *(Tracking ID #47103)*

BACKGROUND: Medical staff may be uncomfortable and reluctant to discuss a patient's prognosis with the patient and family, possibly due to the limited accuracy in prognostication. The purpose of this study is to develop a prediction model for terminally ill cancer patients.
METHODS: A total of 311 patients with terminally ill cancer admitted to the hospice of Japan Baptist Hospital in the years 1995 to 2000 are included in the analysis. They are divided into two groups: 237 for training data and 74 for test data. Twenty-three variables including age, gender, blood count and serum laboratory measurements at the initial admission were analyzed. Three statistical and data mining techniques, logistic regression analysis (LR), naive Bayesian (NB) and decision tree induction (TI) were used to develop prognostic models. They were designed to predict 30-day survival after the first admission to the Hospice ward. Classification accuracy (CA), sensitivity, specificity and area under the receiver operating characteristic curve (AUC) were calculated to evaluate the accuracy of each model.
RESULTS: The numbers of 30-day survival patients in the two groups were 155 (65.4%) and 43 (58.1%), respectively. Total bilirubin and fraction of lymphocyte were the significant predictive factors in all models. Classification accuracy, sensitivity, specificity and AUC of each model are listed in Table 1.
CONCLUSION: Three different data mining techniques independently identified total bilirubin and fraction of lymphocyte as important predictive factors for terminally ill cancer patients, and may be useful for clinical decision making. Data mining techniques are useful tools in uncovering such important relationships within an existing database.

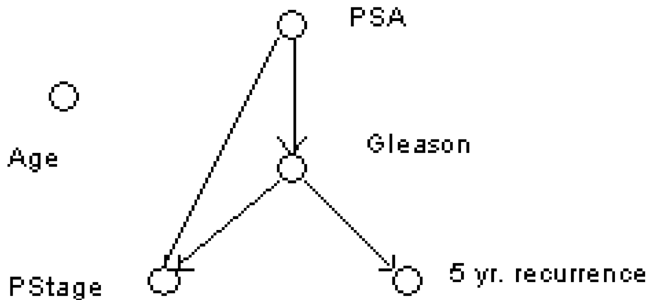
**Table 1. Evaluation of Each Prognostic Model in the Test Data**

| | CA | Sensitivity | Sepecificity | AUC |
|---|---|---|---|---|
| LR | 73.0 | 58.1 | 83.7 | 74.8 |
| NB | 77.0 | 67.7 | 83.7 | 80.6 |
| TI | 60.8 | 45.2 | 72.1 | 65.1 |

**ASSESSING THE RELATIONSHIP BETWEEN INDEPENDENT VARIABLES USING BAYESIAN NETWORKS.**
A. Hoang[1], H. Burke[1]; [1]George Washington University, Washington, DC *(Tracking ID #52176)*

BACKGROUND: Our understanding of the factors involved in the pathogenesis and progression of disease has been based on models that provide information regarding the

relationship between each factor and the outcome, adjusted for the other factors. These models do not provide information regarding the relationship between the factors in terms of the outcome. The purpose of this study is to assess the relationships between the independent variables, in relation to the outcome, using a Bayesian network model.
METHODS: The data set consisted of 1,961 cases of prostate cancer diagnosed from 1987 – 1996 at the Mayo Clinic who, at diagnosis, had a PSA value and who were treated with radical prostatectomy. The independent variables were PSA, TNM stage, Gleason score, age and the outcome was five-year recurrence. A Bayesian network describes the probability distribution governing a set of variables by specifying a set of conditional independence assumptions along with a set of conditional probabilities.
RESULTS: A simplified Bayesian network representing the joint probability distribution over the variables age, PSA, stage, Gleason score, and recurrence with the weakest arcs removed is shown at left. The patient's age at diagnosis was independent of stage, PSA, Gleason score, and recurrence. Once the Gleason score was known, stage was independent of recurrence status and PSA was independent of recurrence status. PSA, Gleason score, and stage were not independent of each other. The conditional probabilities can be determined from the network, for example, the probability of recurrence at five years for a patient with a Gleason score of 2 – 6 was 8.1%, the probability of recurrence for a Gleason score of 7 was 16.3%, and the probability of recurrence for a Gleason score of 8 – 10 was 74.5%.



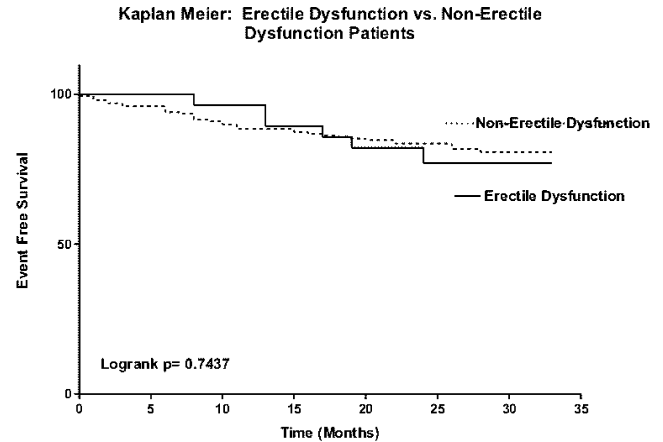

CONCLUSION: We have demonstrated that Bayesian networks provide additional information not available in multivariate regression. Bayesian networks are useful in assessing new variables, especially gene array factors, and in understanding the pathogenesis of prostate cancer.

**EFFECTS OF MISATTRIBUTION IN ASSIGNING CAUSE OF DEATH ON PROSTATE CANCER MORTALITY RATES.** R.M. Hoffman[1], S.N. Stone[2], W.C. Hunt[2], C.R. Key[2], F.D. Gilliland[3]; [1]New Mexico VA Health Care System, Corrales, NM; [2]New Mexico Tumor Registry, Albuquerque, NM; University of Southern California, Los Angeles, CA *(Tracking ID #50641)*

BACKGROUND: Prostate cancer (CaP) incidence and mortality rates both began rising following the advent of PSA testing in the late 1980s — even though the majority of PSA-detected cancers were early stage. Mortality rates can be affected by misattribution in assigning cause of death to CaP on death certificates. Our objectives were to estimate the magnitude of any misattribution and to determine whether attribution bias could explain the increase in CaP mortality rates.
METHODS: Investigators retrospectively reviewed medical records to classify cause of death for men, previously diagnosed with CaP, who died in New Mexico in either 1985 or 1995. All deaths attributed to CaP by the New Mexico Bureau of Vital Statistics (BVS) were evaluated as well as 1/4 of deaths attributed to other causes. The investigator-assigned cause of death, "CaP" versus "another cause," was compared with the cause assigned by BVS. Attribution bias was defined as the net difference between BVS and investigators in the number of deaths attributed to CaP relative to the number attributed by investigators. The McNemar test was used to test for equivalence in the proportion of cases attributed to CaP by BVS and investigators.
RESULTS: In 1985 investigators attributed 107 deaths to CaP and 174 to other causes; in 1995 they attributed 125 deaths to CaP and 373 to other causes. Overall agreement between investigators and BVS increased from 85.1% in 1985 to 95.8% in 1995, P < 0.01. However, during this period, attribution bias increased from 1.9% (P = 1.0) to 16.8% P = 0.2), inflating the number of deaths overattributed to CaP from 2 to 21. From 1985 to 1995, the New Mexico crude CaP mortality rate increased 33.5% from 18.5 to 24.7 per 100,000. After adjusting for attribution bias, the increase was only 15.9% from 18.2 to 21.1 per 100,000.
CONCLUSION: Death certificates became increasingly accurate in assigning cause of death, however, attribution bias increased from 1985 to 1995. The adjusted increase in crude mortality rates was substantially less than the observed increase, suggesting that attribution bias could explain about half of the observed increase in the CaP mortality rate.

**NEGATIVE STRESS ECHOCARDIOGRAPHIC STUDY PREDICTS EXCELLENT LONG TERM PROGNOSIS IN PATIENTS WITH ERECTILE DYSFUNCTION.** L. Sharan[1], M. Kamalesh[1], R. Matorin[1], A. Ariana[1]; [1]University of Illinois at Urbana-Champaign, Urbana, IL *(Tracking ID #51034)*

BACKGROUND: The risk factors for coronary artery disease (CAD) and erectile dysfucntion (ED) are similar. Recent reports suggest increased incidence of asymptomatic CAD in subjects with ED. We hypothesized that the long term prognosis of subjects with ED would be similar to that of a high risk group of patients with CAD but without ED.
METHODS: Follow up information was collected on 236 consecutive male subjects who had SE between Oct. 96 and Dec. 97 and were negative for inducible ischemia. Baseline cardiac risk factors and cardiac events (cardiac death, non-fatal myocardial infarction and coronary revascularization)were identified.
RESULTS: Follow up was obtained for 233 patients for a mean duration of 25 months. 28 subjects (12%) of the cohort had erectile dysfunction. Mean age was similar in both groups. Baseline coronary risk factors showed an excess of diabetes in the ED group (64% vs 35%, p = .005). At 35 months of follow up there was no significant difference in the annualized occurrence of cardiac events between the two groups (4.6% vs 4.3%, p = NS). Logistic regression analysis revealed that none of the factors were significant in predicting outcome in ED patients. The event free survival for the two groups over three years is shown below.




CONCLUSION: Subjects with ED have a modest cardiac event rate despite a negative stress echo; however, this event rate is not different from similar groups at high risk for CAD.

**ASSOCIATION BETWEEN OVERALL AND ABDOMINAL OBESITY AND CORONARY HEART DISEASE: THE HEART & ESTROGEN/PROGESTIN REPLACEMENT STUDY.** A.M. Kanaya[1], M. Shlipak[1], E. Vittinghoff[1], H. Resnick[2], M. Visser[3], D. Grady[1], E. Barrett-Connor[4]; [1]UCSF, San Francisco, CA; [2]Medstar Research, Washington, DC; [3]Vrije University, Amsterdam, Netherlands; [4]UCSD, La Jolla, CA *(Tracking ID #50176)*

BACKGROUND: Prior studies have found that obesity independently increases the incidence of coronary heart disease (CHD) mortality, but abdominal obesity may be a stronger risk factor than overall obesity. Few studies have examined obesity and fat distribution as predictors of CHD events in postmenopausal women.
METHODS: Using data from the Heart and Estrogen/progestin Replacement Study (HERS), we followed 2,763 postmenopausal women with CHD for 4.1 years to evaluate measures of overall obesity (body-mass index (BMI)) and abdominal obesity (waist-hip ratio (WHR)) and changes in WHR (Δ WHR) from baseline to follow-up as predictors of CHD outcomes. The CHD outcome was nonfatal myocardial infarction or CHD death. We used multivariate proportional hazards models that adjusted for age, race, current smoking, renal insufficiency, heart failure symptoms, ≥2 prior myocardial infarctions, and self-reported health. We further adjusted for diabetes, hypertension, and dyslipidemia to check for potential mediation of the association between obesity and CHD.
RESULTS: Of the 2,763 women in the study, 72% were overweight (BMI 25 – 29.9 kg/m2) or obese (BMI ≥ 30 kg/m2). The mean WHR was 0.87. During 4.1 years of follow-up, 361 women had a CHD event. In adjusted models that included both WHR and BMI, only WHR and Δ WHR predicted CHD events. The association of baseline WHR and Δ WHR with CHD risk was most pronounced in women with low BMI. (Table) Diabetes, hypertension and dyslipidemia did not mediate this association.
CONCLUSION: We found abdominal obesity to be a stronger risk factor for CHD events than overall obesity in postmenopausal women with CHD. WHR remained significantly associated with CHD even after adjusting for traditional cardiac risk factors. Underweight women with larger WHR may be at higher risk of the harmful effects of visceral obesity.

**Multivariate Risk of CHD Events Due to WHR Stratified by BMI Categories**

| | n (%) | Baseline WHR (per SD) | Δ WHR (per SD) |
|---|---|---|---|
| BMI: <18.5 | 24 (0.9) | 11.0 (2.5 – 48.7) | 6.4 (0.6 – 71.7) |
| 18.5 – 21.9 | 224 (8.1) | 1.7 (1.1 – 2.6) | 2.9 (1.6 – 5.5) |
| 22.0 – 24.9 | 517 (18.7) | 1.3 (1.0 – 1.8) | 1.3 (0.8 – 2.1) |
| 25.0 – 29.9 | 1,051 (38.1) | 1.1 (0.9 – 1.3) | 1.2 (0.8 – 1.6) |
| ≥30 | 942 (34.2) | 1.2 (1.0 – 1.5) | 1.2 (0.9 – 1.6) |
| p-for-trend | | 0.002 | 0.09 |

**IMPACT OF THE AHRQ UNSTABLE ANGINA GUIDELINE ON THE TRIAGE OF ED PATIENTS WITH POSSIBLE ACUTE CARDIAC ISCHEMIA.** DA. Katz[1], T.P. Aufderheide[2], M.P. Bogner[1], P.R. Rahko[1], J.R. Beshansky[3], H.P. Selker[3]; [1]University of Wisconsin, Madison, WI; [2]Medical College of Wisconsin, Milwaukee, WI; [3]Tufts-New England Medical Center, Boston, MA *(Tracking ID #50772)*

BACKGROUND: The AHRQ Unstable Angina Guideline recommends assessment of the short-term risk of adverse events in the evaluation of emergency department (ED) patients (pts)

with sx suggestive of acute cardiac ischemia (ACI), but whether the guideline improves triage decision making and quality of care is unknown.
METHODS: We conducted a prospective clinical trial of the AHRQ guideline (pre-post design with a non-equivalent control group). The intervention included: 1) training of emergency physicians (EPs) in use of the guideline, 2) real-time reminder (guideline algorithm), and 3) group feedback. The study sample included 1060 consecutive adults (>30 yrs) who presented to two University hospital EDs with chest pain or other sx of possible ACI (shortness of breath, left arm pain, epigastric pain, nausea/vomiting, or dizziness) and who received a 12-lead ECG during the period 1/00 – 5/01. Study pts received a baseline evaluation in the ED and 30-day telephone follow-up (supplemented by medical record review) to assess the occurrence of adverse events and follow-up care. Physician reviewers, blinded to guideline risk group assignment, assigned final dx based on clinical history plus objective evidence of ischemia/injury (mean kappa = 0.84 for dx of ACI). 30-day follow-up was complete for 87% of pts.
RESULTS: Patients enrolled during baseline and intervention periods were similar across all demographic and clinical characteristics. 69% of low risk pts were discharged from the ED, whereas 57% of intermediate-high risk pts were admitted to a telemetry or CCU bed, as recommended. No significant differences in guideline-recommended triage or diagnostic evaluation were observed between baseline and intervention periods. Further analysis showed poor concordance (44%) between the EPs' risk group assignments and guideline risk groups (based on literal interpretation of guideline criteria). Of 159 intervention pts identified as intermediate-high risk according to the guideline, 39 (25%) were classified as low risk by EPs (7 had confirmed ACI). However, the accuracy of EP assessment in identifying pts with confirmed ACI was superior to that of the guideline alone (ROC area: 83 vs. 69%, resp.).
CONCLUSION: Implementation of the AHRQ guideline did not significantly change triage decisions, as EPs tended to use other information besides guideline risk group criteria in their assessment of pts with possible ACI. Although the guideline may have some utility in detecting "near misses" and pts who require close follow-up, concordance with guideline recommendations does not necessarily improve care, as EPs showed better discrimination than the guideline alone in identifying pts with confirmed ACI.

**A SIMPLE SCORE TO IDENTIFY PATIENTS DISCHARGED TO A PLACE OTHER THAN HOME AFTER HOSPITALIZATION.** M.P. Kossovsky[1], M. Louis Simonet[1], P. Sigaud[1], P. Chopard[1], F.P. Sarasin[1], T.V. Perneger[2], J.M. Gaspoz[1]; [1]Department of Internal Medicine and Groupe de Recherche et d'Analyse en systèmes et soins hospitaliers, Geneva, Switzerland; [2]Quality of Care Unit and Groupe de Recherche et d'Analyse en systèmes et soins hospitaliers, Geneva, Switzerland *(Tracking ID #51341)*

BACKGROUND: Early identification of patients unable to be discharged home after hospitalization could save inappropriate hospital days by precocious planning of their transfer to rehabilitation facilities. We developed a simple score on the basis of previously identified characteristics of patients discharged to a place other than home (Table).
METHODS: Sample: 392 patients consecutively admitted in the wards of general internal medicine between January and April 2001, and discharged alive. Model development: a simple integer score was computed from a multivariate logistic regression model, assigning points in proportion to the regression coefficients of the patients' characteristics measured upon admission, that were significantly associated with discharge to a place other than home. Then, a cross-validation procedure was performed in order to assess the degree of overfitting of the prediction model to the development sample. Cross-validation consisted in splitting the sample into random tenths, and then developing the model on 90% of the sample (development subset) and applying the prediction equation to the remaining 10% (validation subset); this was repeated 10 times, each time rotating the validation subset. The ability of the cross-validated score to predict discharge to a place other than home was examined by comparing its area under the receiver operating curve (AUC) with that obtained from the naive prediction score without cross-validation.
RESULTS: When variables in the prediction model were allowed to vary independently, AUC reached 0.78. When variables were added to form the score, AUC was 0.78; scores ranged from 0 to 11. At a cutoff point ≥ 4, the score predicted discharge to a place other than home with a sensitivity of 80% and a specificity of 63%. After cross-validation, AUC was 0.77, ruling out substantial overfitting of the score.
CONCLUSION: Combination of characteristics collected upon admission led to a simple score predicting discharge to a place other than home after a hospital stay in general internal medicine with reasonable accuracy. Systematically measured at admission, the score could facilitate early planning of discharge towards rehabilitation facilities.

| Variable | Logistic regression coefficient | Adjusted odds-ratio (95%CI) | p | Point score |
|---|---|---|---|---|
| Age 65-79 | 0.7 | 1.9 (1.1 – 3.3) | 0.02 | + 1 |
| ≥80 | 1.1 | 2.9 (1.5 – 5.5) | 0.001 | + 2 |
| Active medical problems 3-5 | 0.5 | 1.7 (1.0 – 2.8) | 0.05 | + 1 |
| ≥ 6 | 1.1 | 2.6 (0.8 – 8.3) | 0.1 | + 2 |
| Dependence in ADLs 1-4 | 1.0 | 2.7 (1.6- 4.5) | < 0.001 | + 2 |
| ≥ 5 | 1.9 | 6.5 (2.6 – 16.3) | < 0.001 | + 4 |
| Admitted through transfer | 0.9 | 2.4 (1.3 – 4.5) | 0.007 | + 2 |
| Spouse not giving informal help | 1.0 | 2.7 (1.6 – 4.5) | < 0.001 | + 2 |

**MALARIA IN MINNEAPOLIS.** K.L. Larsen[1], D.N. Williams[1], D. Berke[1]; [1]Hennepin County Medical Center, Minneapolis, MN *(Tracking ID #51933)*

BACKGROUND: Malaria is one of the most prevalent and deadly infectious diseases world wide. 300 to 500 million people may be infected worldwide with up to a million deaths per year. Malaria is not endemic to Minnesota, but like much of the US, the anopheles mosquito, the malaria vector, is endemic here. There were an average 14 cases of Malaria per year reported to the Minnesota Department of Health between 1988 and 1995, making Minnesota the state with the third highest incidence in the nation. There has been a substantial increase in cases reported in Minnesota after 1995, corresponding with an influx of immigrants from Africa.
METHODS: Hennepin County Medical Center is an academic tertiary care hospital which cares for large numbers of immigrants. A log of all of the blood smears for malaria has been kept since 1979. An analysis of this log, with a chart review of cases with available records to complete missing demographic information was completed.
RESULTS: Between 01/01/1980 and 12/31/1999 there were 171 patients with positive smears, with an annual incidence averaging around 5 cases per year in the 1980's and 12 cases per year in the 1990's. Of the total number of cases 14 were in US natives traveling to other countries. Most of the rest were recent immigrants at the time of diagnosis. The species breakdown was 76 P. falciparum, 16 P. ovale, 46 P. vivax, and 3 P. malaria, the rest were undetermined. The countries of origin of the patients with malaria changed predictably with the demographics of Minnesota immigration. In the early 1980's most cases originated in Southeast Asia: Vietnam and Laos. In the 1990's that shifted to Africa with most cases from West Africa: Liberia, Nigeria, Ivory Coast and Ghana but also many from East Africa: Kenya, Somalia and Ethiopia. The species also shifted from predominantly P. vivax from Asia, to more of P. falciparum from Africa.
CONCLUSION: In conclusion, malaria is a potentially deadly infection that is treatable if diagnosed. With the vector present, a large enough pool of people infected could potentially make this infection endemic to the US again. This data highlights the need for clinicians to be aware of malaria as a serious health risk in immigrants from endemic areas even in far north, non-endemic regions like Minneapolis.

**FUNCTIONAL HEALTH RECOVERY AFTER MAJOR ABDOMINAL SURGERY IN ELDERS.** V.A. Lawrence[1], H.P. Hazuda[2], J.E. Cornell[1], C.D. Mulrow[2]; [1]South Texas Veterans Health Care System, San Antonio, TX; [2]University of Texas Health Science Center at San Antonio, San Antonio, TX *(Tracking ID #51099)*

BACKGROUND: More than 375,000 patients ≥65 years old had major open abdominal surgery in 1999, comprising 36% of all such operations. Yet little is known of the expected course of recovery to guide expectations and risk-benefit assessment for elders. We conducted the first large cohort study of elders having elective open abdominal surgery to map long-term functional recovery in multiple domains.
METHODS: Prospective cohort study of 372 patients ≥60 years old, assessed preoperatively (preop) and postoperatively (postop) at 1,3, and 6 weeks, 3 and 6 months. Self-report and performance-based measures included Activites of Daily Living (ADL), Instrumental Activities of Daily Living (IADL), SF-36, timed walk, and grip strength.
RESULTS: Patients were 56% male with mean age of 69 ± 6.4 years. Settings were private hospitals (49%) and tertiary care academic VA (19%) and public (32%) hospitals. Operations included ventral hernia repair (n = 69,17%), partial or total colectomy (143,38%), and aortic (88,24%), upper abdominal (52,14%), and other lower abdominal (20,5%) procedures.
Mean ADL score worsened from 7.5 ± 1.3 preop to 10.3 ± 3.7 one week postop (p<0.0001), remained significantly worse than preop through 6 weeks (p0.001), returning to preop levels by 3 months. Mean IADL score worsened from 9.6 ± 2.4 preop to 17.3 ± 4.8 one week postop (p < 0.0001) and continued significantly worse than preop until 6 months.
Mean timed walk returned to baseline by 3 months while mean grip strength remained significantly worse than preop even at 6 months postop.
Mean SF-36 physical component score worsened from 38 ± 11 preop to 30 ± 8 at 3 weeks postop (p < 0.0001), remained significantly worse at 6 wks postop (p = 0.01), and returned to preop levels by 3 months. Mean SF-36 mental component score did not deteriorate postop.
Proportions of patients not recovered to preop status at 6 months postop (defined for each measure by clinically important difference) were: ADL 9%; IADL 19%; SF-36 physical and mental components 16% and 17%; timed walk 38%; and grip strength 52%.
CONCLUSION: Recovery trajectories vary for different domains of function. Substantial numbers of elders do not recover to preop functional health as long as 6 months after surgery. This first comprehensive, longterm study of functional recovery in elders having elective major abdominal surgery provides important natural history data for counseling patients and their families, identifying predictors of recovery, and developing interventions to enhance recovery.

**SIMPLE INTERVENTIONS MAY IMPROVE FUNCTIONAL RECOVERY AFTER HIP FRACTURE REPAIR.** V.A. Lawrence[1], J.H. Silverstein[2], J.E. Cornell[1], J.L. Carson[3]; [1]South Texas Veterans Health Care System and University of Texas Health Science Center, San Antonio, TX; [2]Mt. Sinai School of Medicine, New York, NY; [3]University of Medicine & Dentistry of New Jersey, New Brunswick, NJ *(Tracking ID #51573)*

BACKGROUND: Considerable research has addressed predictors of functional recovery after hip fracture repair. One potentially important modifiable factor is anemia, but the value of, and best trigger for, transfusion is unclear. In other surgical settings, perioperative beta blockers have been shown to reduce postoperative cardiac complications and reduce long-term mortality in high risk cardiovascular patients. We tested the hypotheses that higher postoperative hemoglobin (Hgb) levels and beta blockers (BB) may improve early functional recovery after hip fracture repair.
METHODS: We used a retrospective cohort, originally assembled to study variation in transfusion practice and outcome, of patients ≥60 years old undergoing hip fracture repair, 1982 – 1993, in 19 hospitals in 4 states. We excluded patients who declined blood transfusion or had multiple trauma, metastatic cancer, multiple myeloma, above-knee amputation, para- or quadriplegia, or acute preoperative medical complications. For this analysis, we also excluded patients with a history of congestive heart failure (BB contraindicated for the years we collected data). The primary outcome was functional recovery defined as distance walked on discharge from the hospital. We defined BB status as no, yes with pulse ≥70, and yes with pulse ≤70. For Hgb, we used the average postoperative Hgb before discharge. We performed multivariate linear regression analysis to adjust for other perioperative variables that could influence functional recovery (e.g., comorbidity, preoperative functional status, postoperative complications).
RESULTS: The regression model included 5,665 patients and explained 20% of the variance in distance walked at discharge. Two variables were independently associated with greater distance walked: higher postoperative Hgb (p < 0.0001) and BB therapy (p = 0.004). Variables associated with poorer performance included: greater age and comorbidity, poorer preoperative functional status, neurological disease (p < 0.0001 for all), female gender (p = 0.003), chronic obstructive lung disease (p = 0.008), congestive heart failure on chest radiography (p = 0.014), prior hospitalization within one month (p = 0.02), and, marginally, any postoperative medical

complication (p = 0.11). Adjusted for multiple testing and compared to no beta blocker, BB with pulse <70 was associated with greater distance walked (p = 0.01) but BB with pulse ≥70 was not.
CONCLUSION: Two modifiable factors, higher hemoglobin and beta-blockade, were associated with better early functional recovery after hip fracture repair. If proven by clinical trials, these findings would broaden the role of perioperative beta blockade and clarify the role of perioperative transfusion.

**THE IMPACT OF MAJOR DEPRESSION IN A COHORT OF HIGH-UTILIZING PRIMARY CARE PATIENTS.** J.M. Levine[1], K.E. Brown[2], M. Chawarski[2], D. Fiellin[2], P.G. O'Connor[2], W.H. Sledge[2]; [1]Albert Einstein College of Medicine, Bronx, NY; [2]Yale University, New Haven, CT *(Tracking ID #50888)*

BACKGROUND: The purpose of this study was to determine differences in demographics, health care costs, functional status, and psychosocial co-morbidities among high-utilizing primary care patients with and without major depressive disorder (MDD). Previous studies have suggested that depression is associated with increased health care costs, controlling for severity of illness. Little is known about specific factors that affect or mediate this utilization.
METHODS: In an inner-city academic primary care center, we performed a cross-sectional analysis of current adult outpatients with at least one medical or surgical inpatient admission in the past year. Subjects were identified from an administrative data base listing patients with multiple past hospitalizations. Subjects participated in a multi-faceted psychosocial assessment as a first step in a randomized trial of primary care case management. Assessment included demographic data, reading level, psychiatric syndromes (PRIME-MD), functional status (SF-36), and history of physical/sexual abuse.
RESULTS: Of 77 patients assessed, 52/77 (68%) were female, 40/77 (52%) Black, 23/77 (30%) White, 9/77 (12%) Hispanic. 69/77 (90%) were insured through Medicaid; 34/77 (44%) had not finished high school, and 27/77 (35%) read at a sixth grade level or less. 22 of 77 patients (28.6%) met criteria for current MDD. Those with MDD were younger (mean 45 vs. 54 years, p < .03). Despite similar overall calculated inpatient costs over the past year (mean $23,556 vs. $16,483, p > .2, N.S.), those with MDD had been hospitalized more often (mean 3.5 vs. 2.0 times, p = .01). Patients with MDD had comparable physical functioning as measured on the SF-36, but more bodily pain, poorer self-reported general health, poorer role and social functioning, lower mental health and vitality (p < .03 for all). Patients with MDD reported more lifetime physical or emotional abuse (68% vs. 32%, p = .006) and greater occurrence of physical violence within the past year (32% vs. 7%, p = .01).
CONCLUSION: In this cohort of high-utilizing primary care patients, the prevalence of MDD was higher than that found in general primary care surveys and associated with increased numbers of hospitalizations, poorer functional status, and elevated rates of reported physical abuse. The possible interactive effects of depression and personal violence on healthcare utilization deserve further study.

**ASSESSING MISSED OPPORTUNITIES FOR HIV TESTING IN THE MEDICAL SETTING.** R. Liddicoat[1], N.J. Horton[1], E. Maier[1], R. Urban[1], D. Christiansen[2], J.H. Samet[1]; [1]Boston University School of Medicine, Boston, MA; [2]Boston University School of Public Health, Boston, MA *(Tracking ID #51752)*

BACKGROUND: Many HIV-infected persons learn about their diagnosis years after initial infection. The extent to which missed opportunities for HIV testing occur in medical evaluations prior to one's HIV diagnosis is not known.
METHODS: We performed a 10-year retrospective chart review of patients seen at an HIV intake clinic between 1/94 and 6/01 who tested positive for HIV during the 12 months prior to presentation. Data collection included demographics, clinical presentation, and whether HIV testing was addressed in the clinical encounter. Pre-specified triggers for physicians to recommend HIV testing, such as specific patient characteristics, symptoms, and physical findings were recorded for each visit. Multivariable logistic regression was used to identify factors associated with missed opportunities for discussion of HIV testing. Generalized estimating equations (GEEs) were used to account for multiple visits per subject.
RESULTS: Triggers for HIV testing were found in the encounter note of 93% of patients (221/237) and in 1702/1868 visits (91%). Characteristics of the 221 patients included: 66% male; mean age 42 years; 49% African American; 22% homeless; and median CD4 count of 252 cells/$\mu$l. The median number of visits per patient prior to HIV diagnosis was five; 22% of these visits were to the emergency department. HIV was addressed in 28% of visits in which triggers were identified. The multivariable regression model indicated that patients were more likely to have testing addressed in sexually transmitted disease (78%), urgent care (39%), and primary care clinics (32%), and during hospitalization (47%), compared to the emergency department (11%), obstetric/gynecology (9%), and other specialty clinics (10%) (p < .0001). More recent clinical visits (1997 – 2001) were more likely to have HIV addressed than earlier visits (p < .0001). Women were offered testing less often than men (p = 0.07).
CONCLUSION: Missed opportunities for addressing HIV testing remain unacceptably high when patients seek medical care in the period before their HIV diagnosis. Despite improvement in recent years, variation by site of care remained important; in particular the emergency department merits consideration for increased resource commitment to facilitate HIV testing. In order to detect HIV infection prior to advanced immunosuppression, clinicians must become more aware of clinical triggers that suggest a patient's increased risk for this infection and lower the threshold at which HIV testing is recommended.

**TREATMENT EXPECTATIONS AND CONCERN ABOUT ANTHRAX AMONG PATIENTS WITH RESPIRATORY TRACT INFECTIONS.** J.A. Linder[1], D.E. Singer[1]; [1]General Medicine Division, Massachusetts General Hospital, Boston, MA *(Tracking ID #51108)*

BACKGROUND: In prior studies, 60% to 75% of adults with upper respiratory tract infections expected antibiotics for their illness. The effect on patient expectations of recent anthrax bioterrorist attacks is unknown. We performed a cross-sectional observational study to assess patient expectations for treatment of upper respiratory infections at the beginning of the 2001 – 2002 flu season.
METHODS: Adult patients presenting to an academic acute care clinic in Boston from November 27th to December 31st, 2001 with respiratory symptoms filled-out a self-administered questionnaire prior to seeing the doctor (n = 178). Patients answered questions about demographics, goals for the visit, reasons for seeking care, expectations for treatment, concern about anthrax, and desire for antibiotics. Information about diagnosis and treatment was extracted from the chart. We analyzed data from subjects who completed the questionnaire, had symptoms for less than 30 days, and received a primary diagnosis of a common respiratory infection (n = 140).
RESULTS: The sample was 82% white, 57% female, and had a mean age of 35. The most common diagnoses were upper respiratory tract infection (39%), acute bronchitis (13%), sinusitis (11%), viral syndrome (6%), otitis media (6%), cough (6%), streptococcal pharyngitis (6), and other pharyngitis (6%). 39% of patients wanted antibiotics. 27% of patients planned to ask the doctor for antibiotics. The most common primary goals for the visit were to obtain a diagnosis (43%), obtain antibiotics (26%), and get reassurance the symptoms were nothing serious (20%). 9 patients (6%) were concerned they might have anthrax. The most common primary reasons for seeking care were relief from annoying symptoms (47%), relief from pain (18%), and the ability to return to work (15%). Desire for antibiotics was not associated with patient age, sex, race, income, education, insurance, or smoking status. Patients who wanted antibiotics reported more average annual antibiotic use than those who did not want antibiotics (1.2 versus 0.9 courses per year; p < .002) and believed antibiotics had worked for similar illnesses in the past (33% versus 9% p < .001). Patients who wanted antibiotics were more likely to be diagnosed as having sinusitis than those who did not want antibiotics (29% versus 6percnt; p < .001). Antibiotics were prescribed to 41% of patients overall. 49% of those who wanted an antibiotic were prescribed antibiotics compared to 35% of the remaining patients (p = .1). Among those who were concerned they had anthrax, 2 patients (22%) received antibiotics (p = .24).
CONCLUSION: At the beginning of the 2001 – 2002 flu season, a minority of patients with upper respiratory diagnoses in an urban acute care clinic wanted antibiotics - less than in previous studies. Patients frequently wanted a diagnosis or reassurance. In an area not directly affected by bioterrorism, very few patients were concerned about anthrax.

**PREVALENCE AND MANAGEMENT OF CORONARY HEART DISEASE IN PRIMARY CARE IN ENGLAND: POPULATION-BASED CROSS-SECTIONAL STUDY.** A. Majeed[1], K. Carroll[2], J. Gray[3]; [1]University College London, United Kingdom, London, England, United Kingdom; [2]Office for National Statistics, London, England, United Kingdom; [3]Battersea Primary Care Research Group, London, England, United Kingdom *(Tracking ID #51359)*

BACKGROUND: In 2000, the Department of Health published a National Service Framework for coronary heart disease in England. We determined the prevalence of coronary heart disease in a large primary care population and compared the management of risk factors in these patients by their primary care physicians against the standards in the national service framework.
METHODS: This study was carried out in 69 primary care practices, total registered population 378,021. All patients over 44 years of age with coronary heart disease were identified from medical records. Information on co-morbidity, risk factors, and treatment was obtained from medical records.
RESULTS: 6778 patients over 44 years of age with coronary heart disease were identified; prevalence was 8.0% in men and 5.2% in women. Age specific prevalence in men rose from 2% among 45 – 54 year olds to 19% among 75 – 84 year olds. In women, age specific rate prevalence from 0.8% among 45 – 54 year olds to 12% among over 84 year olds. Men were more likely to have undergone a coronary revascularisation procedure than women (27% v 11%, adjusted relative risk 2.02, 1.73 to 2.35). There was no sex difference in the proportion of patients with a recorded blood pressure, (89% of men v 90% of women). There was also no sex difference in the proportion of patients with hypertension (26% of men v 27% of women). Total cholesterol had been measured in 64% of men and 55% of women. Serum cholesterol was above 5 mmol/L in 44% of men and 59% of women for whom results were available. There was no sex difference in the proportion of patients with a recently recorded body mass index (34% of men and women). There was no significant difference in the proportion of men and women with a smoking history recorded (31% of men and women) or in the proportions that were current smokers (25% of men v 21% of women). In total, 49% of men and 38% of women were prescribed a statin. Aspirin was prescribed to 65% of men and 59% of women. Men were more likely to be prescribed a statin or aspirin than women (relative risks 1.06; 1.00 to 1.12 and 1.08; 1.03 to 1.14 respectively).
CONCLUSION: There were some striking differences in the management of risk factors between men and women with coronary heart disease in primary care, with men generally receiving higher quality care than women. Our study has also shown there remains considerable scope to improve the management of coronary heart disease in primary care in England.

**INDEPENDENT EFFECTS OF RACE AND SOCIOECONOMIC STATUS ON MORTALITY AFTER ACUTE MYOCARDIAL INFARCTION.** A. Manhapra[1], P.A. Mccullough[2], G. Jacobsen[3], S. Borzak[4], W. Weaver[4], M.P. Hudson[4]; [1]Hackley Hospital, Muskegon, MI; [2]University of Missouri Kansas City, School of Medicine, Kansas City, MO; [3]Department of Biostatistics, Henry Ford Health System, Detroit, MI; [4]Henry Ford Heart & Vascular Institute, Detroit, MI *(Tracking ID #51672)*

BACKGROUND: There have been prior suggestions that differences between African Americans (AA) and Whites in mortality following acute myocardial infarction (AMI) can be explained by socioeconomic status (SES) variations rather than biological differences determined by race. However, studies that have simultaneously addressed the effect of race and SES on mortality following AMI are lacking.
METHODS: We simultaneously examined the influence of race and SES in 3945 acute myocardial infarction patients (42.6% AA) discharged from an urban tertiary care hospital from May 1990 to June 2000 and followed up for a mean period 3.2 years.
RESULTS: The median annual household income of the neighborhoods of African American AMI patients was significantly lower than Whites (US$14,678 vs. $36,526, p < 0.001)). After adjustment year of discharge, age and gender African Americans were at a higher risk for

30-day mortality (Odds ratio [OR] 1.41, 95% Confidence Interval [CI] 1.16 to 1.72) and this was more pronounced among the younger patients (OR for AA < 65 years = 1.87, 95% CI 1.24 to 2.80; OR for ≥ 65 years = 1.29, 95% CI 1.03 to 1.62). On Cox regression analysis among 3445 patients who survived 30 days beyond an AMI, African Americans were also at a higher risk for log-term mortality (Hazards ratio [HR] = 1.61, 95% CI 1.40 to 1.85) after adjustment for year of discharge, age and gender. This risk was nearly uniform in two age groups (HR for AA < 65 years = 1.54, 95% CI 1.19 to 1.97; HR for AA ≥ 65 years = 1.39, 95% CI 1.03 to 1.93). On further adjustment for median annual household income of the neighborhood African American race was no more an independent predictor of mortality (OR for 30-day mortality 0.98, 95% CI 0.76 to 1.27, p = 0.88; HR for long-term mortality 1.18, 95% CI 0.99 1.41, p = 0.07), and the effect was similar among younger and older patients. However, every $10,000 increase in median annual household income of the neighborhood was independently associated with decrease in 30-day mortality (OR 0.88, 95% CI 0.80 to 0.97), and long-term mortality (Hazards ratio 0.91, 95% Confidence interval 0.85 – 0.97).
CONCLUSION: The differences in mortality between African Americans and Whites following acute myocardial infarction are largely explained by differences in socioeconomic status, and thus unlikely to be due to genetic differences determined by ethnicity.

**BIRTH WEIGHT AND NEIGHBORHOOD CHARACTERISTICS IN CHICAGO.** C.M. Masi[1], Z.H. Piotrowski[1], K.E. Pickett[2]; [1]West Suburban Hospital, Oak Park, IL; [2]University of Chicago, Chicago, IL *(Tracking ID #50938)*

BACKGROUND: Although several maternal characteristics, including black race, tobacco use, older age, and lower educational attainment have been identified as risk factors for poor birth outcomes, these risk factors together identify fewer than 50% of women who deliver prematurely. Recent studies suggest neighborhood characteristics may account for additional variance in birth outcomes.
METHODS: We used hierarchical linear modeling to determine whether neighborhood characteristics were associated with birth weight after controlling for several maternal characteristics. Analysis was performed on 55,273 singleton birth records from 829 census tracts in Chicago. Maternal characteristics included age, race, tobacco use, timing of prenatal care, educational attainment, and marital status. Census tract characteristics included racial composition, median income, unemployment rate, property crime rate and violent crime rate.
RESULTS: In multilevel models, census tract violent crime rate and percent African American residents were the most significant neighborhood predictors of lower birth weight. A standard deviation increase in violent crime rate was associated with a reduction in predicted birth weight. This reduction was greater for whites (36 grams) and Hispanics (38 grams) compared to blacks (25 grams). A standard deviation increase in violent crime rate also increased the predicted probability of very low birth weight among whites from 0.008 to 0.010 and the predicted probability of low birth weight among blacks from 0.098 to 0.109. Living in a census tract comprised almost entirely of African American residents was associated with a reduction in birth weight among whites (107 grams), Hispanics (88 grams) and blacks (35 grams). The predicted probability of very low birth weight for whites increased from 0.008 to 0.021 in census tracts with 100% African Americans. The predicted probability of low birth weight for blacks increased from 0.098 to 0.117 in census tracts with 100% African Americans. For Hispanics, the predicted probability of low birth weight increased from 0.048 to 0.070.
CONCLUSION: Neighborhood violent crime rate and racial composition were both associated with birth weight after controlling for maternal characteristics. Further studies are needed to determine whether these neighborhood characteristics affect pregnancy directly or whether they are markers for other important risk factors.

**PRAYER AND SPIRITUAL PRACTICE FOR HEALTH CONCERNS: PREVALENCE AND PATTERNS OF USE.** A. Mccaffrey[1], R. Phillips[1], R. Davis[2], R.B. Saper[1], D.M. Eisenberg[1]; [1]Beth Israel Deaconess Medical Center, Boston, MA; [2]Harvard Medical School, Boston, MA *(Tracking ID #51804)*

BACKGROUND: Praying to a higher power and intercessory prayer (spiritual or religious healing by others) are practices used by many adults for their health concerns, yet little is known about the patterns of use and their perceived effectiveness.
METHODS: A nationally representative telephone survey conducted in 1998 (N = 2055, 60% weighted response rate) queried respondents on their use of "prayer or spiritual practice for your own health concerns" and "spiritual or religious healing by others". Data were collected on sociodemographics, general health status, utilization of conventional medicine, and utilization of complementary and alternative medical therapies (CAM). Factors associated with the use of prayer and healing-by-others were analyzed using a multivariable logistic regression model. SUDAAN software was used for all analyses in order to adjust for the complex sample survey design.
RESULTS: We found that 35% (weighted n = 721) of survey respondents reported use of self-prayer (SP), and 19% of self-prayer users (7% of total survey, n = 134) also used spiritual-healing-by-others (SHBO). The top three illnesses for which people used SP were depression, cancer, and anxiety (35%, 34%, and 32%, respectively), with high levels of perceived helpfulness for all three (68%, 81%, 70%). The top three illnesses for which people used SHBO were cancer, kidney disease, and neurologic disease (11, 10, 8%) with high levels of perceived helpfulness for all three (87%, 60%, 54%). Both SP and SHBO were also used for wellness (75% and 70% respectively). Users of SHBO were more likely to inform their MD than users of SP (23% v 11%). Logistic regression showed the following to be associated independently (p < 0.05) with SP: female sex (OR 1.5 [1.2,1.9]), education beyond high school (1.3 [1.0,1.6]), use of prescription meds (1.6 [1.2,2.1]), and use of other CAM therapies (3.9 [2.9, 5.1]). The following factors were associated with SHBO: female sex (OR 2.1 [1.3, 3.2]) and use of other CAM therapies (5.8 [3.0, 11.2]). In both models, religious affiliations were associated with increased use of both SP and SHBO.
CONCLUSION: Using 1998 census bureau data, we estimate that 72 million adults used SP for their health concerns, and 13 million of these were also using SHBO. Factors related to use of both SP and SHBO include female sex, religious affiliations, and use of other CAM therapies. Both SP and SHBO have high levels of perceived helpfulness, are used for both specific medical conditions and wellness, but are not commonly reported to physicians.

**C-REACTIVE PROTEIN AND LEG FUNCTIONING IN PATIENTS WITH AND WITHOUT PERIPHERAL ARTERIAL DISEASE.** M.M. Mcdermott[1], P. Greenland[1], W. Pearce[1], J.M. Guralnik[2], M.H. Criqui[3], L. Taylor[4], J. Schneider[5], K. Liu[1], GJ. Martin[1], P. Ridker[6], N. Rifai[6], D. Green[1], C. Chan[1], M. Quann[1], M. Fornage[7]; [1]Northwestern University, Chicago, IL; [2]National Institute on Aging, Bethesda, MD; [3]University of California at San Diego, San Diego, CA; [4]Oregon Health Sciences Medical Center, Portland, OR; [5]Evanston/Northwestern Hospital, Evanston, IL; [6]Harvard Medical School, Boston, MA; [7]University of Texas at Houston, Houston, TX *(Tracking ID #50634)*

BACKGROUND: Inflammatory markers are implicated in the pathophysiology of atherosclerosis. We determined whether C-reactive protein (CRP) levels are associated with functional impairment in patients with and without peripheral arterial disease (PAD).
METHODS: We studied 392 persons with PAD (ankle brachial index (ABI) < 0.90) and 249 without PAD (ABI = 0.90 to 1.50). We measured physical activity over seven days with accelerometer, 6-minute walk, and 4-meter walking velocity. ABI and blood for CRP were obtained when functional measures were performed.
RESULTS: CRP levels were associated linearly and inversely with functioning (table). Adjusting for age, sex, ABI, comorbid disease, and other confounders, CRP was associated independently with six-minute walk distance(−31.0 feet/mg/dl, p < 0.02) and physical activity level (−76.3 activity units/mg/dl, p < 0.01). These independent relationships were maintained in analyses conducted among PAD participants.
CONCLUSION: CRP is associated inversely with lower extremity functioning in persons with and without PAD, independently of the ABI and other confounders. Further study is needed to determine whether therapeutic lowering of CRP improves functioning in PAD.

**Relationships between CRP Quintiles and Functional Measures (n = 641)**

| | CRP Quintile 1 | CRP Quintile 2 | CRP Quintile 3 | CRP Quintile 4 | CRP Quintile 5 | Trend P Value |
|---|---|---|---|---|---|---|
| 6-minute walk distance (feet) | 1,351 | 1,311 | 1,222 | 1,214 | 1,123 | <0.001 |
| Physical activity (activity units) | 1,047 | 953 | 912 | 822 | 745 | <0.001 |
| 4-meter walking velocity (m/sec) | 0.95 | 0.92 | 0.90 | 0.89 | 0.87 | <0.001 |

**ACCURACY OF REPORTED FAMILY HISTORY OF CARDIOVASCULAR DISEASE AND RISK FACTORS:THE FRAMINGHAM OFFSPRING STUDY.** J.M. Murabito[1], B. Nam[2], R.B. D'Agostino[2], D.M. Lloyd-Jones[3], C.J. O'Donnell[3], P.W. Wilson[1]; [1]Boston University School of Medicine, Framingham Heart Study, Framingham, MA; [2]Boston University, Framingham Heart Study, Boston, MA; [3]NHLBI's Framingham Heart Study, Framingham, MA *(Tracking ID #51801)*

BACKGROUND: Family history is used in both clinical and research settings to infer risk of disease, yet little is known about the accuracy of a person's reported family history.
METHODS: We examined the accuracy of self-reported family history using validated events in a population-based study. Offspring participants of the multigenerational Framingham Heart Study (FHS) completed a family history questionnaire as part of a routine exam from 1995 to 1998. Only participants who had both natural parents in the original cohort of the FHS were included. Original cohort have been examined since 1948 with measurement of risk factors biennially and adjudication of stroke and myocardial infarction (MI) by a physician panel. Offspring self-report of parental history was compared to the confirmed parental status in the database. Positive (PPV) and negative (NPV) predictive values of offspring report for selected parental risk factors and events were calculated.
RESULTS: Parental history data were available from 791 men and 837 women who had a mean age of 57 years. The PPVs and NPVs are shown in the table below. There were no differences in self-reported family history in men and women offspring. PPV for parental MI increased to 76.5% if MI was defined as any coronary event including coronary death or the MI occurred at any age.
CONCLUSION: With the exception of hypertension, a silent condition, a negative family history report is exceedingly accurate. A positive report, however, for early onset MI or stroke is highly inaccurate and appears to limit the utility of collecting this information to assess the family burden of vascular events.

| Condition in Parent | Father PPV (%) | Father NPV (%) | Mother PPV (%) | Mother NPV (%) |
|---|---|---|---|---|
| Hypertension | 88.9 | 44.3 | 94.0 | 48.9 |
| Diabetes | 76.4 | 94.3 | 79.1 | 96.7 |
| MI < age 55 | 17.1 | 99.5 | Too few events | Too few events |
| Stroke < age 65 | 29.0 | 97.8 | 39.5 | 98.2 |

**COMPLEMENTARY AND ALTERNATIVE MEDICINE USE IN PATIENTS WITH CORONARY ARTERY DISEASE ADMITTED WITH ACUTE CORONARY SYNDROMES.** S. Narreddy[1], D. Barraco[1], G. Valencia[1], A.L. Riba[1]; [1]Oakwood Healthcare System, Dearborn, MI *(Tracking ID #52089)*

BACKGROUND: Numerous studies have documented that the use of complementary and alternative medical (CAM) therapies is common and becoming more prevalent. Most CAM are used to prevent illness and maintain health and vitality. Given the burden and prognosis of coronary artery disease (CAD) and the emphasis on its prevention, we hypothesized that the use of CAM would be very common in patients with CAD (which has not previously been

studied in CAM therapy use). The purpose of the study was to assess the prevalence and predictors of CAM in CAD patients admitted with acute coronary syndromes (ACS).
METHODS: All patients with documented CAD admitted to the cardiac care units of our hospital during the period of August 1 – October 31, 2001, with chest pain or acute coronary syndromes were asked to participate. Eligible patients (n = 223) were directly surveyed by trained interviewers on their use of CAM in the past year (derived from a broad based list of therapies), their perceived benefits and rationale for use, demographics, socioeconomic status, health beliefs, past medical history and comorbidities.
RESULTS: In this patient population, 74% had used at least one CAM prior to the index admission, with the most frequently used treatments being Prayer 33.2%, Exercise 27.4%, Physical therapy 12.6%, Chiropractic manipulation 14% and Herbal therapy 5%. The frequency of use of CAM for cardiac reasons was 12.1%. The predictors of CAM use will be presented.
CONCLUSION: We conclude that the use of CAM in patients with documented CAD admitted with ACS is more than the general population, with exercise and prayer being the most commonly used CAM. The use of CAM in this population for cardiac reasons is lower than expected.

**GENDER DIFFERENCES IN THE EFFECT OF LONGSTANDING DIABETES ON CARDIOVASCULAR MORTALITY.** S. Natarajan[1], Y. Liao[2], D. Sinha[2], G. Cao[2], S.R. Lipsitz[2], D. Mcgee[2]; [1]Medical University of South Carolina and the Ralph H. Johnson VAMC, Charleston, SC; [2]Medical University of South Carolina, Charleston, SC *(Tracking ID #52308)*

BACKGROUND: Though it is well known that diabetes (DM) has a greater impact on cardiovascular disease (CVD) mortality in women than in men, little is known about the comparative effect of diabetes duration on fatal CVD in men and women. Because prevalent coronary heart disease (CHD) is an accepted marker of increased risk for fatal CVD (fatal CHD and stroke), we evaluated if the risk for CVD mortality differed by gender among persons with recently diagnosed or long-standing diabetes when compared to prevalent CHD.
METHODS: Data from the First National Health and Nutritional Examination Survey Epidemiologic Follow-up Study (18 years follow-up) were analyzed. Respondents were 35 – 74 years old at baseline and diabetes was classified as long-standing (LDM) and recent (RDM) based on whether diabetes duration was 10 years. Individuals who reported physician-diagnosed heart attack were considered to have CHD. CVD death was determined from the death certificate, a proxy interview or both. Cox models adjusting for age, smoking, hypertension, total cholesterol, body mass index and accounting for the complex sampling design, evaluated the effect of diabetes duration on CVD mortality, using prevalent CHD as the reference.
RESULTS: The number of men (N = 4669) with neither CHD nor DM, CHD only, RDM only, LDM only and both (DM and CHD) at baseline were 4081, 369, 113, 64 and 42, while the corresponding numbers in women (N = 6202) were 5657, 225, 200, 85 and 35, respectively. The CVD mortality rate/1000 person-years in men with neither CHD nor DM, CHD only, RDM only, LDM only and both were 14.9, 54.2, 46.2, 43.0 and 81.7, while it was 8.9, 30.8, 25.7, 52.0 and 44.9 in women. When compared to CHD only, the multivariate hazard ratio (HR) for fatal CVD in men was 0.4 (95% confidence interval [CI] 0.3 – 0.4) in men with neither CHD nor DM, 0.7 (CI 0.5 – 1.0) for RDM, 0.7 (CI 0.5 – 1.1) for LDM and 1.9 (CI 1.2 – 2.9) for both DM and CHD. The corresponding HR in women were 0.5 (CI 0.4 – 0.7), 1.0 (CI 0.7 – 1.4), 1.9 (CI 1.3 – 2.9) and 1.5 (CI 0.8 – 2.6) respectively.
CONCLUSION: In men, both recent diabetes and long-standing diabetes had similar risk for CVD mortality, being comparable to the risk associated with prevalent CHD. In women, while recent diabetes has as high a risk for CVD mortality as prevalent CHD, long-standing diabetes has a higher risk for fatal CVD. Because women with long-standing diabetes seem to be at very high risk for fatal CVD, current management guidelines may need to be further refined in order to match intensity of treatment to risk.

**RATE OF DEATH FROM LIVER DISEASE AMONG PEOPLE WITH HEPATITIS C IN SAN FRANCISCO.** J.R. Orland[1], P.D. Varosy[1], T. Aragon[2]; [1]University of California, San Francisco, San Francisco, CA; [2]San Francisco Department of Public Health, San Francisco, CA *(Tracking ID #51854)*

BACKGROUND: Approximately 2.7 million people in the United States are infected with the hepatitis C virus (HCV). Eight to nine thousand deaths per year, or about one-third of liver-disease related deaths, have been attributed to HCV infection. This suggests that only a small fraction of those with HCV infection die of liver disease or cirrhosis (LDC) in an average year.
METHODS: We determined the mortality rate from liver disease and cirrhosis in San Francisco (SF) based on information from RAND California, a nonprofit research and analysis institution, for the year 1998. In order to account for under-reporting of LDC deaths and for the possibility that deaths due to hepatocellular carcinoma were not included among LDC deaths, we performed sensitivity analyses on the estimates of the number of these deaths due to HCV. We then used the SF Department of Public Health estimates of the prevalence of HCV infection in SF in 1998 to calculate the mortality rate among HCV-infected persons in San Francisco.
RESULTS: We found that of the 7055 deaths reported in SF in 1998, 85 (1.2%) were attributed to LDC, and that approximately 14,500 persons in SF were infected with HCV in 1998. Assuming that one third of deaths due to LDC are HCV-related, the LDC mortality rate among the HCV-infected was 0.18 (95% CI, 0.12 – 0.27) per 100 person-years. A sensitivity analysis using both the lowest (11,500) and highest (17,600) reasonable estimates of the prevalence of HCV infection did not meaningfully alter these results (0.15 – 0.23 per 100 person-years). Even under the unreasonably conservative assumption that all of these deaths were HCV-related, the LDC mortality rate is still low, 0.59 (95% CI, 0.47 – 0.72) per 100 person-years.
CONCLUSION: The mortality rate due to LDC is surprising low among HCV-infected individuals. People infected with HCV are often afflicted with drug addiction, alcoholism, depression, homelessness, low socioeconomic status and other conditions with high risks of mortality even in the absence of HCV infection. Whether people with HCV infection are more likely to die of LDC or of these co-morbidities is unclear. Further studies should explore whether treating co-morbidities might be more effective in reducing mortality among the HCV-infected than is treating the infection itself.

**THE EFFECT OF SUBSTANCE ABUSE TREATMENT ON UPTAKE OF ANTI-RETROVIRAL THERAPY AND HEALTH CARE UTILIZATION.** A. Palepu[1], N.J. Horton[2], N. Campagnoni[3], K. Dukes[3], S. Meli[2], J.H. Samet[2]; [1]University of British Columbia, Vancouver, British Columbia, Canada; [2]Boston University, Boston, MA; [3]DM-STAT Inc., Medford, MA *(Tracking ID #50386)*

BACKGROUND: Among HIV-infected persons with a history of alcohol problems, little is known about the effect of substance abuse services on uptake of antiretroviral therapy (ART) and health care utilization. We therefore examined these issues among participants in the HIV-Alcohol Longitudinal Cohort (HIV-ALC) study.
METHODS: A standardized questionnaire was administered to 350 HIV-infected participants with a history of alcohol problems inquiring about demographics, substance use, ART, use of substance abuse services, physician visits, hospitalization and emergency department visits. We defined substance abuse services as: stable (any of the following in the past 6 months: 4 weeks in a half-way house or residential facility; 4 visits to a substance abuse counselor or mental health professional; or any methadone maintenance); unstable (any nights spent in detoxification or a holding unit in the past six months); neither or both. Self-help was defined as attendance at an AA or NA meeting at least weekly on average in the past six months. Other variables included in the multivariable model were sex, age, alcohol severity (Alcohol Dependence Scale [ADS]), homelessness, or prior incarceration. Four logistic regression models were constructed to examine ART use and inadequate health care utilization. The latter was examined over the previous 6 months and defined similar to the HIV Cost and Services Utilization Study: <2 visits to a primary care physician, emergency department (ED) visits not resulting in hospitalization, and any hospitalization.
RESULTS: Factors associated with ART use at baseline included being in stable substance abuse treatment versus none (adjusted odds ratio; 95% confidence interval): (1.8; 1.0 – 3.1) and not being homeless (2.1; 1.3 – 3.6). In terms of inadequate health care utilization, injecting drugs in the previous 6 months was associated with fewer than 2 primary care visits (4.1; 1.5 – 11.4); being homeless was associated with ED visits (2.0; 1.8 – 3.6); black race (2.8; 1.4 – 5.6) and severity of alcohol dependency (1.04; 1.01 – 1.07) were both associated with hospitalization in the past 6 months.
CONCLUSION: HIV-infected persons with a history of alcohol problems who are engaged in stable substance abuse treatment are more likely to be on antiretroviral therapy. However, substance abuse treatment appears to have little effect on inadequate health care utilization whereas recent injection drug use, homelessness, black race and severity of alcohol dependency do. Substance abuse treatment may support HIV-infected substance abusers in HIV-related medical treatment and represent an opportunity to improve these patients' use of medical services.

**PREDICTORS OF ADVERSE DRUG EVENTS IN OUTPATIENTS.** J.F. Peterson[1], A. Rosen[1], T.K. Gandhi[1], S.N. Weingart[2], A.C. Seger[1], D.L. Seger[1], J. Borus[1], K. Shu[1], E. Burdick[1], F. Federico[1], L.L. Leape[3], D.W. Bates[1]; [1]Brigham and Women''s Hospital, Boston, MA; [2]Harvard University, West Roxbury, MA; [3]Havard School of Public Health, Boston, MA *(Tracking ID #52185)*

BACKGROUND: In previous studies, it has been difficult to identify a subset of hospitalized patients who are at especially high risk of adverse drug events (ADEs). However, ADEs may occur more frequently in subpopulations of outpatients. To appropriately target interventions which reduce ADE rates, we examined the association between patient characteristics and number of ADEs.
METHODS: Over a 4-week period, all patients who visited 4 primary care clinics were invited to participate in a phone survey. Patients were surveyed at 2 weeks and 3 months following their clinic visit about all drug-related symptoms, and the medical record was reviewed for any documentation of an adverse drug event. Two physicians rated each incident for the presence of an ADE and preventability. The association between patient characteristics and number of adverse drug events was studied in a multivariate regression model. The number of ADEs per patient was assumed to fit a Poisson distribution. Nine variables were included as covariates: age, race, gender, education, primary language, Charlson comorbidity index , number of years at present clinic, and recipient of computerized vs. written prescriptions. The number of current medications was included to account for varying exposure to medications among study subjects. Only those variables with a univariate $p < 0.25$ were introduced into the model. Clustering between patients cared for by the same provider was accounted for using a generalized estimating equation.
RESULTS: The average number of ADEs per patient was 0.25. None of the patient level characteristics (age, race, gender, education, primary language, Charlson comorbidity index, number of years at present clinic, and clinic type) was correlated with presence of an ADE in the univariate or multivariate analyses. Only the number of medications taken by patients was associated with ADE frequency. The mean number of ADEs was increased by 10% (95% CI: 6 – 15%) for every additional medication taken.
CONCLUSION: No patient characteristics were correlated with presence of an ADE in the outpatient setting. Thus, systematic interventions targeting all patients may be more effective that ones identifying high-risk groups.

**RESEARCH ON D-DIMER TESTS FOR DEEP VENOUS THROMBOSIS: THE GOLD STANDARD AND BIAS IN NEGATIVE PREDICTIVE VALUE.** J.T. Philbrick[1], S. Heim[1]; [1]University of Virginia, Charlottesville, VA *(Tracking ID #50416)*

BACKGROUND: In recent years, studies of d-dimer as a test for deep venous thrombosis (DVT) often have used ultrasound (US) instead of venography as the gold standard (GS). Because US fails to fully image the calf veins, there is the potential for US studies to classify patients with calf DVT in the non-diseased column, causing bias in test index calculations. A false increase in negative predictive value (NPV) is especially likely because calf DVT false negative tests (FN calf) will be counted in the numerator along with the true negative tests (TN) in NPV calculations (Table). This bias in a "rule-out" test should be of major concern to clinicians. We have reviewed recently published studies to determine the direction and potential magnitude of bias.

METHODS: We abstracted data on total (calf and thigh) and thigh-only test sensitivity, specificity, and NPV from the 12 English language studies published since March 1995 that compared d-dimer to a GS and that also stratified results by thigh and calf location. Thigh specificity and NPV were calculated classifying calf DVT in the free-of-disease column as shown in the table.
RESULTS: Six studies used venography as the GS, 3 used a combination of US and venography, and 3 US alone. There were 35 comparisons of 14 d-dimer assays with a GS. Thigh sensitivity was higher than total sensitivity in 33 of 35 comparisons (mean 3.4, std.dev. 2.9, range −0.4 to 11.20); thigh specificity lower than total in 35 of 35 (mean −5.0, std.dev. 4.6, range −21.7 to −0.7); thigh NPV was higher than total in 30 of 35 (mean 5.9, std.dev. 5.0, range 0.0 to 19.3). NPV was greater than 95% in 26 of the thigh comparisons but in only 11 of the total comparisons (p < 0.001). The difference between thigh NPV and total NPV was correlated with calf DVT prevalence (r = 0.84, p < 0.001).
CONCLUSION: Different GS can result in clinically significant differences in test indices. We compared thigh-only DVT with total (calf and thigh) DVT, an assumption likely to maximize the bias found; but the studies that used US as the GS likely missed some calf DVT, reducing bias. Care must be taken in interpreting DVT studies that evaluate d-dimer as a rule-out test and that use US as a GS, since missed calf DVT can falsely elevate NPV.

**Potential Effect of Ultrasound as Gold Standard on 2 by 2 Table Cells**

| | Thigh DVT | Calf DVT or Absent |
|---|---|---|
| D-dimer positive | TP thigh | TP calf + all FP |
| D-dimer negative | FN thigh | FN calf + all TN |

**DRIVING ON SUPER BOWL SUNDAY.** D.A. Redelmeier[1], C.L. Stewart[1]; [1]University of Toronto, Sunnybrook & Women's College HSC, Toronto, Ontario, Canada *(Tracking ID #51729)*

BACKGROUND: Motor vehicle collisions are a common cause of death, disability, and emergency medical care, particularly for young men in good health. We wondered whether the telecast of the National Football League Super Bowl championship is associated with a temporary increase in fatal crash rates for the United States.
METHODS: We identified people killed in fatal crashes from 1975 through 2000 by analyzing the Fatal Accident and Reporting System database, reflecting the full interval of data available (26 years). We selected all collisions on the day of the Super Bowl telecast (hereafter labeled "Super Bowl Sundays") as well as collisions on the day one week earlier and on the day one week later (hereafter labeled "Standard Sundays").
RESULTS: In total, 8,121 individuals were killed in collisions during the 78 individual days (104 per day, on average). The median age was 27 years, 66% were men, and 0.5% had missing collision times. As expected, the relative risk of a fatal collision was the same in the morning of Super Bowl Sundays compared to the morning of Standard Sundays (odds ratio: 1.09, 95% confidence interval: 0.98 to 1.19). In the afternoon the relative risk was still similar (odds ratio: 1.02, 95% confidence interval 0.94 to 1.10). In the evening the relative risk had decreased marginally (odds ratio: 0.94, 95% confidence interval: 0.87 to 1.00). These marginal benefits were completely off-set at night by a large increase in relative risk (odds ratio: 1.29, 95% confidence interval 1.21 to 1.37, p < 0.001). The relative increase in night fatalities applied to both men and women, both those above and below age 50, and both drivers and non-drivers. The relative increase in night fatalities was accentuated in states where the home team lost. Nationally, the increase in mortality totalled 196 extra deaths during the 26 Super Bowl Sundays, equivalent to about an 8% relative increase in overall fatalities.
CONCLUSION: We suggest that emergency departments schedule extra staffing for the night of Super Bowl Sunday, that clinicians in ambulatory care settings warn patients to avoid unnecessary night driving on Super Bowl Sunday, and that policy makers acknowledge that television programs can sometimes induce lethal violence.

**ASSOCIATIONS OF SPECIFIC ALCOHOL EXPOSURES AND COGNITIVE FUNCTION AMONG OLDER MALE VETERANS IN PRIMARY CARE.** M.C. Reid[1], Z. Guo[1], P.G. O'Connor[1], J. Concato[1]; [1]West Haven VA Medical Center & Yale University School of Medicine, New Haven, CT *(Tracking ID #51307)*

BACKGROUND: Alcohol consumption is common among older persons, yet the effects of alcohol on cognitive function remain poorly defined. We examined the associations between specific alcohol exposures and cognitive function among older veterans receiving primary care at the West Haven VA Medical Center.
METHODS: Participants in this cross-sectional study were aged ≥65 years and community-dwelling. Prevalent alcohol exposure status was determined using the Timeline Followback and AUDIT questionnaires. Among current drinkers, "at-risk" drinking was defined as consumption of ≥14 drinks/week, ≥4 drinks on at least one occasion in the past month, or an AUDIT score ≥8. A CAGE score ≥2 was used to classify both current and former drinkers with a lifetime history of alcohol abuse/dependence ("CAGE+"). Six standardized tests (Trails A, Trails B, FAS, Symbol Digit, Hopkins Memory, and Clock Drawing) were employed to assess participants' executive, psychomotor speed, memory, and global cognitive functions. A composite cognitive score was computed by converting participants' scores on each test to a z score and then summing the six z scores.
RESULTS: Of 935 eligible veterans screened between 7/1/00 & 8/15/01, 760 (81%) agreed to participate. Participants had a mean age (range) age of 74.5 years (65–89), 90% were caucasian, and all were male. Least square means (standard error) of the composite scores for 6 mutually exclusive exposure groups are shown below (Table); adjusted for age, race, education, depressive symptoms, hypertension, stroke, and smoking history. Positive scores reflect better performance; negative scores indicate worse performance.
CONCLUSION: Current drinkers who screened negative on the CAGE as well as for at-risk drinking had the highest cognitive scores of any exposure group. Our results support guidelines that call for avoidance of specific prevalent (at risk) and lifetime (CAGE+) exposures throughout adult life.

| Exposures | N | Cog. Score | SE | P Value |
|---|---|---|---|---|
| Current&Cage− | 335 | 0.230 | 0.259 | <0.0001 |
| Current&Cage+ | 58 | −0.178 | 0.467 | 0.08 |
| At risk&Cage− | 71 | −0.139 | 0.428 | 0.05 |
| At risk&Cage+ | 47 | −0.493 | 0.519 | 0.29 |
| Former&Cage;+ | 78 | −0.592 | 0.426 | 0.29 |
| Former&Cage;−, or Never | 171 | [Reference | Category] | n.a. |

**IMPLEMENTATION OF AN OPIOID CONTRACT POLICY IN A PRIMARY CARE SETTING.** M.C. Reid[1], D.A. Fiellin[2], A.R. Chandrasena[2], P.G. O'Conno[1]; [1]West Haven VA Medical Center and Yale University, New Haven, CT; [2]Yale University, New Haven, CT *(Tracking ID #52275)*

BACKGROUND: Opioid contracts are agreements between patients and providers that specify the terms under which a patient can receive opioid medications. The contracts have often been cited as an effective tool in the management of chronic non-cancer pain (CNCP) patients on opioid medications, however, their use has not been studied in a primary care setting. In January 2001, an academically affiliated primary care practice located in an urban setting implemented a new policy strongly encouraging primary care providers (PCPs) to use written opioid contracts in the care of all CNCP patients on opioid medications. Our aims were to determine PCPs' adherence with this policy and to assess level of provider satisfaction with CNCP patient care before and after implementation of the policy.
METHODS: Patients eligible to receive an opioid contract included individuals on long-term opioid therapy for a CNCP condition who did not previously have a contract. We calculated adherence as the proportion of eligible patients with signed contracts from 1/1/01 through 12/31/01. We first surveyed resident physicians in their medicine continuity clinics and their attending physicians prior to the implementation of the policy. Participants were asked to rate their level of satisfaction with specific aspects of CNCP patient care and frequency of contract use (using 5-point Likert scale responses), and to estimate the time spent (minutes/week) dealing with opioid prescription matters. To assess for change, participants were resurveyed 6 months later using the same questionnaire.
RESULTS: Of the 80 eligible patients, 66 (82%) signed an opioid contract during the follow-up period. A total of 56 PCPs were surveyed: 52 (93%) completed a baseline and 50 (89%) a follow-up survey. The proportion of PCPs who reported being satisfied delivering opioid medications to CNCP patients increased from baseline to follow-up (18% vs. 49%, P < 0.01). As compared with baseline percentages, PCPs felt that CNCP patients on opioid medications were more likely to be seen on a regular, as opposed to an unscheduled, basis (44% vs. 64%, P = 0.04); and were more likely to be prescribed an appropriate amount of opioid medication (42% vs. 66%, P = 0.04) at follow up. Self-reported use of opioid contracts by PCPs also increased from baseline to follow-up (28% vs. 85%, P < 0.01). The mean time spent dealing with opioid prescription matters did not change (30 vs. 27 minutes/week, P = 0.89).
CONCLUSION: Overall adherence with the opioid contract policy was substantial. Use of the contracts was associated with specific improvements in provider satisfaction, but did not affect the time spent dealing with opioid prescription matters. The extent to which opioid contracts impact on other endpoints in a primary care setting (e.g., opioid analgesic misuse) is currently being examined.

**PHYSICIAN AND PUBLIC VIEWS ON DIRECT-TO-CONSUMER PHARMACEUTICAL ADVERTISING.** A.R. Robinson[1], K. Hohmann[1], C.M. Gilroy[1], J. Pickard[1], J. Rifkin[1], D. Topp[1], R.J. Anderson[1]; [1]HealthONE Presbyterian/St Luke's Medical Center and University of Colorado Health Sciences Center, Denver, CO *(Tracking ID #52153)*

BACKGROUND: The rapid growth in direct-to-consumer (DTC) prescription drug advertising has generated significant controversy in the medical community. Limited information is available on how physicians and consumers perceive these ads and their influence on the physician-patient relationship.
METHODS: We randomly surveyed 1000 Colorado physicians using a mail questionnaire and 500 Colorado residents by telephone, asking them to rate their level of agreement with several statements regarding DTC advertising.
RESULTS: Response rate was 58% for physicians and 80% for the public. Overall, 9.1% of physicians and 29.0% of public respondents agreed that DTC ads are a positive trend in health care (p < 0.0001). The following table shows % of respondents who stated that DTC ads "rarely" or "never":

| DTC ads rarely or never: | Physicians | Public | P-value |
|---|---|---|---|
| Provide enough info on other treatment options | 88.5 | 71.6 | <0.0001 |
| Provide enough info on side effects | 47.9 | 33.3 | <0.0001 |
| Provide enough info on cost | 93.2 | 87.1 | 0.0002 |
| Lead to a decrease in the cost of medications | 77.8 | 87.7 | <0.0001 |

Regarding aspects of the physician-patient relationship, the following table shows % of respondents who agreed that DTC ads "often" or "sometimes":

| DTC ads often or sometimes: | Physicians | Public | P-value |
|---|---|---|---|
| Make patients/me* better informed about medical problems | 43.2 | 28.6 | <0.0001 |
| Motivate patients/me* to seek care | 63.6 | 10.5 | <0.0001 |
| Cause patients/me* to request specific meds | 79.8 | 13.3 | <0.0001 |
| Change patients/my* expectations of me/my doctor | 67.1 | 11.3 | <0.0001 |

*Physicians asked regarding "patients"; public asked regarding "me"

In addition, 52.7% of physicians agreed or strongly agreed that DTC ads increase time spent with patients, 61.5% that ads increase drug consumption, 68.5% that better regulation of ads is needed, and 22.2% that ads change their prescribing practices. Only 14.5% of public respondents stated that they prefer advertised medications.
CONCLUSION: In general, both physicians' and the public's views on DTC advertisements are largely but not wholly negative. While these ads appear to have a direct effect on only a minority of the public in terms of leading people to seek care or to request specific medications, a majority of physicians perceive that they frequently increase time spent with patients and change patients' expectations. Thus, DTC ads may have a significant impact on the physician-patient relationship.

**THE PERSISTENCE OF DEPRESSIVE SYMPTOMS FOLLOWING CABG SURGERY.**
B.L. Rollman[1], B. Herbeck Belnap[1], W.P. Gardner[1], B.L. Loftus[1], C.L. Mitchell[1], C.F. Reynolds[1]; [1]University of Pittsburgh, Pittsburgh, PA *(Tracking ID #50642)*

BACKGROUND: Depression worsens the prognosis for co-morbid medical conditions, including coronary artery disease, and is common among patients about to undergo coronary artery bypass (CABG) surgery. However, little is known about the prevalence of depressive symptoms post-operatively or whether these persist following discharge from the hospital.
METHODS: We assessed depressive symptoms using the Patient Health Questionnaire (PHQ) approximately 3–5 days following CABG at two urban academic teaching hospitals as part of a pilot study to screen and then treat elevated levels of depressive symptomatology with antidepressant pharmacotherapy. Patients met all protocol-eligibility criteria for the study including a Folstein Mini-Mental Status exam ≥24, no current depression care from a mental health specialist, no current alcohol or substance use disorder, no organic mood syndromes or unstable medical condition, no language or other communication barrier, and they were able to be evaluated and treated for depression as an outpatient following hospitalization. We considered a PHQ Score ≥10 as indicating major depression. We then readministered the PHQ to patients over the telephone approximately 2 weeks after hospital discharge.
RESULTS: Between 3/01–10/01, we assessed 181 patients who met preliminary protocol eligibility criteria and agreed to be approached by a research assistant. Of these 172 (95%) signed informed consent to undergo our screening procedure and 13% met our criteria for major depression. They had a mean age of 64 (range 42–75) and 68% were male. Afterwards, 15 (89%) signed informed consent to enroll in our pilot study. Two weeks following hospital discharge, we were able to contact 13 patients (87%) of whom 12 (92%) agreed to complete the PHQ again and 83% scored ≥10 on the PHQ.
CONCLUSION: Major depression is common following CABG surgery and often persists following discharge home. Primary care physicians should be aware of the prevalence and persistence of depressive symptoms among post-CABG patients, and screen and subsequently treat these patients accordingly.

**PHYSICIAN PRESCRIBING OF ACE-INHIBITORS TO HIGH-RISK PATIENTS WITH DIABETES.**
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BACKGROUND: The incidence of end stage renal disease (ESRD) among patients with diabetes is increasing rapidly. Clinical trial evidence supports the use of ACE inhibitors as secondary prevention among most patients with diabetes. However, past studies suggest that clinicians may be slow to adopt secondary prevention strategies (such as aspirin and beta blocker medications after MI). This study examined the prescribing of ACE-Inhibitors to patients with diabetes, with a focus on two high-risk subgroups: patients with albuminuria and hypertension.
METHODS: We sampled a cohort of 42,593 patients with diabetes enrolled in Kaiser Permanente Northern California during 1996–2000. We identified patients with albuminuria based on an abnormal urine test that included microalbuminuria or overt proteinuria and identified patients with hypertension based on either the clinical diagnosis code from outpatient encounter data or self-reported hypertension on survey. We examined predictors of ACE-I use using multivariable logistic regression adjusting for demographics, comorbidities, diabetes type and degree of glycemic control, education, socioeconomic status, and drug benefit copayment amount.
RESULTS: Overall, 59.5% of patients were prescribed ACE-Inhibitor or Angiotensin Receptor Blocker therapy and this varied by risk group. Unadjusted rates of use were 77.8% in patients with both hypertension and albuminuria, 65.1% in hypertensives without albuminuria, and 64.3% in albuminurics without hypertension. Multivariate analyses demonstrated that rates of ACE-I use were positively associated with increasing age, decreasing pharmacy copay, and presence of hypertension or albuminuria: hypertension alone OR 5.3 (95%CI 4.9–5.7), albuminuria alone OR 5.0 (95%CI 4.5–5.6), hypertension in combination with albuminuria OR 9.9 (95%CI 9.1–10.8).
CONCLUSION: This study found moderately high rates of ACE-Inhibitor use among patients with clear clinical indications. The rate of adoption of ACE-Inhibitors for secondary prevention in high risk diabetics appears to have been rapid in this managed care sytem. Future studies should examine reasons both for success and failure to prescribe these agents to patients with hypertension and albuminuria in order to further improve quality of care.

**MINOR ACUTE ILLNESS: A POSSIBLE NEW ENTITY IN PRIMARY CARE.**
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BACKGROUND: We proposed minor acute illness (MAI) as a new clinical entity among high utilizing patients (6 or more visits/year).* Based upon chart ratings by a physician using detailed criteria (kappa .93 for agreement with standard), patients with medically unexplained symptoms (MUS) fell into 2 categories: 1) chronic somatization (definitions adapted from DSM-IV) and 2) MAI, which showed different symptoms of shorter duration (days to weeks) but which recurred frequently. At 1–2 years later, MAI diagnoses persisted more than somatization but showed lower utilization. We hypothesized a difference from somatization on measures of physical/mental health, which would provide support for MAI as a new entity.
METHODS: 3 medicine residents rated charts of high utilizing patients (more than 8 visits/year for 2–3 years preceding study) for the most recent year. From these data, a computerized algorithm identified the patient's primary problem as organic disease, somatization, MAI, or psychiatric. The WHO-CIDI was administered to patients to make DSM-IV somatoform diagnoses (including abridged), depression was measured by the CES-D, anxiety by the Spielberger State Anxiety Scale (SSAS), and physical health by the Physical Component Summary (PCS) of the SF-36 and by the Somatic Symptom Scale (SSS).
RESULTS: With good rater reliability, among all high utilizers, ~2/3 had organic disease and ~1/3 had MUS. Of 137 MUS patients, 84 had somatization (61.3%), 36 had MAI (26.3%), and 17 were mixed (12.4%). DSM-IV somatoform diagnoses were found in 46/84 (54.8%) with somatization, 11/36 (30.6%) with MAI, and 8/17 (47.1%) with mixed. Nonsignificant trends toward less abnormality were found in MAI patients on PCS, CES-D, SSAS, and SSS. When classifying each chart category as DSM-IV (+) or (−) and comparing them to psychological scores, an overall F-test (5df) produced a borderline finding for SSAS (p = .10) and significant changes for PCS (.009) and SSS (p = .006). Thus, patients with somatization who were DSM-IV (+) had poorer performance than MAI patients who were DSM-IV (−).
CONCLUSION: These results support the hypothesis that MAI and somatization differ among high utilizing MUS patients. If this common, new primary care entity can be further supported over the next several years, this will be an important 'emerging issue for generalists' who see most MAI patients. Now lacking diagnostic and treatment guidelines must be developed — to offset possibly inappropriate treatment as well as unnecessary demands (e.g., antibiotics; CT scan).

*SMITH RC et al.: Minor acute illness – a preliminary research report of the 'worried well.' *Journal of Family Practice* 2002; 51:24-29.

**CHANGING USE OF OUTPATIENT ANTIBIOTICS IN THE UNITED STATES: 1991–1999.**
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BACKGROUND: Judicious use of antibiotics can slow the spread of antimicrobial resistance, yet little is known about the overall use of these agents in ambulatory settings. We studied national trends in outpatient antibiotic use during the 1990s, with particular focus on newer broad-spectrum antibiotics.
METHODS: We used data from the National Ambulatory Medical Care Survey, a national probability sample of community-based outpatient visits, during 3 two-year periods (1991–92, 1994–95, and 1998–99). Our main outcome measures were rates of overall antibiotic use, and use of newer broad-spectrum antibiotics (second-generation macrolides, quinolones, amoxicillin/clavulanate, and second and third-generation cephalosporins).
RESULTS: Between 1991–92 and 1998–99, the percentage of outpatient visits in which an antibiotic was prescribed fell from 17% to 13% of visits (P < .001). This reflected both a smaller number of visits for common infectious conditions, and less antibiotic prescribing for patients with upper respiratory tract infections, otitis media, and acute bronchitis. Despite a decline in total antibiotic use, adult use of newer broad-spectrum agents increased from 24% to 48% of antibiotic prescriptions (P < .001), and pediatric use rose from 23% to 40% of prescriptions (P < .001). Among adults, there were particularly sharp increases in the use of azithromycin and clarithromycin (from 2% to 13% of prescriptions; P < .001) and the quinolones (from 8% to 16%, P < .001), while children became more likely to use azithromycin and clarithromycin (from <1% to 13%, P < .001) and amoxicillin/clavulanate (from 6% to 11% P < .001). Increased use of these medications occurred across multiple age groups and conditions. For example, quinolones rose from 17% to 35% of adult antibiotic prescriptions for urinary tract infections (P < .001), and from <1% to 13% of prescriptions for the common cold and unspecified upper respiratory tract infections (P < .001). By 1998–99, 22% of adult and 14% of pediatric use of newer broad-spectrum antibiotics was for the common cold, unspecified upper respiratory infections, and acute bronchitis — conditions that are primarily viral in etiology.
CONCLUSION: Ambulatory antibiotic use is declining in the U.S. However, physicians are increasingly turning to expensive, broad-spectrum agents, even for illnesses where there is little clinical rationale for their use.

**DO OLANZAPINE AND RISPERIDONE CAUSE WEIGHT GAIN AND DIABETES?**
W.R. Farwell[1], T.E. Stump[1], J. Wang[1], E. Tafesse[1], G. L'Italien[1], W.M. Tierney[1]; [1]Indiana University, Roudebush VA Medical Center, Regenstrief Institute, Indianapolis, IN *(Tracking ID #52377)*

BACKGROUND: Newer antipsychotic drugs have been found to cause weight gain and diabetes, but these studies have included highly selected patients with little or no comorbidity who received atypical, intensified care. Epidemiologic studies have not adequately controlled for prior medical and psychiatric history or intensity of care.
METHODS: This case-control study analyzed data stored in a comprehensive electronic medical record (EMR) serving an inner-city public hospital's inpatient, emergency, and outpatient services and all 19 county mental health clinics. We identified 10,433 patients treated with antipsychotic drugs: 1640 first treated with olanzapine, 2248 first treated with risperidone, and 6545 first treated with typical phenothiazines. We then identified patients who, in the first year of antipsychotic treatment, gained ≥10 lbs or had new-onset diabetes, as evidenced by diagnoses, drug therapy, and lab tests. Separately for olanzapine and risperidone, we matched patients with ≥10 lb weight gain or new-onset diabetes with up to 4 control patients by age (±2 years), sex, and race. We assessed the effects of olanzapine or risperidone on the odds of developing each outcome, using univariable and multivariable conditional logistic regression, controlling for comorbid medical and psychiatric diagnoses and the number of prior mental health and primary care visits.

RESULTS: The mean age of all patients was 42 years; 52% were women, and 57% were white. Combining patients taking olanzapine or typical phenothiazines, 207 gained ≥10 lbs, of whom 151 (73%) were matched with controls (mean 2.0/case), while 52 developed new-onset diabetes, of whom 51 (98%) were matched with controls (mean 3.2/case). Olanzapine use was a significant univariable (OR 2.3, p = .002) and multivariable (OR 2.4, p = .04) risk factor for ≥10 lb weight gain. Olanzapine use was also a significant univariable (OR 2.1, p = .06) and multivariable (OR 5.9, p = .02) risk factor for developing new-onset diabetes. Combining patients taking risperidone or typical phenothiazines, 221 gained ≥10 lbs, 159 (72%) of whom were matched with controls (mean 2.2/case), while 45 developed new-onset diabetes, all of whom were matched with controls (mean 3.4/case). Risperidone use was a significant univariable (OR 1.7, p = .01) and multivariable (OR 2.1, p = .03) risk factor for gaining ≥10 lb. Risperidone use was not a significant univariable (OR 1.3, p = .5) or multivariable (OR 1.1, p = .9) risk factor for developing new-onset diabetes.
CONCLUSION: Controlling for comorbid medical and psychiatric conditions and intensity of outpatient care, both olanzapine and risperidone were risk factors for gaining ≥10 lbs in the first year of treatment, olanzapine more so. But only olanzapine significantly increased the risk of developing new-onset diabetes.

**PREVALENCE OF OBESITY AMONG DISABLED PERSONS.** E. Weil[1], M. Wachterman[1], E.M. Mccarthy[1], R.B. Davis[1], B. O'Day[1], L.I. Iezzoni[1], C.C. Wee[1]; [1]Beth Israel Deaconess Medical Center, Boston, MA *(Tracking ID #46498)*

BACKGROUND: Obesity is associated with disability. Little is known, however, about rates of obesity in specific disabled populations. Our primary goal was to determine the prevalence of obesity in persons with physical, sensory, and mental health disabilities.
METHODS: We used the 1994–95 National Health Interview Survey, a US household survey (n = 145,007), to examine obesity rates in six groups: blind/low vision; Deaf/hard of hearing; lower extremity mobility difficulty (LEMD); upper extremity mobility difficulty (UEMD); hand dexterity difficulty (HDD); and serious mental illness. We calculated adjusted odds ratios (AOR) for attempting weight loss and receiving exercise counseling in the past year (n = 17,276). We used SUDAAN, to adjust for demographics, body mass index and comorbidities; samples were weighted to reflect the US population.
RESULTS: Persons in all disability categories were more likely to be obese than persons without that disability (see table). Adjusted OR of attempting weight loss did not differ, except for persons with severe LEMD, who were less likely, and persons with mental illness, who were more likely to attempt weight loss. Persons with severe LEMD or UEMD were less likely to receive exercise counseling from their physicians.
CONCLUSION: Obesity is more prevalent in those with sensory, physical, and mental health disabilities. Those with severe LEMD are particularly at risk, but are less likely to attempt weight loss or receive exercise counseling. Persons with other disabilities were as likely to attempt weight loss. Clinical providers should provide weight control and exercise advice to persons with disabilities.

| | Weighted Percent Obese | Obesity AOR(CI) | Attempted Weight Loss AOR(CI) | Exercise Counseling AOR (CI) |
|---|---|---|---|---|
| No Disability | 15.0 | | | |
| Blind | 26.4 | 1.5 (1.3–1.6) | 0.9 (0.6–1.3) | 1.0 (0.7–1.4) |
| Deaf | 23.3 | 1.3 (1.2–1.4) | 1.0 (0.8–1.3) | 1.0 (0.8–1.3) |
| Severe LEMD | 29.3 | 2.5 (2.3–2.7) | 0.7 (0.5–0.9) | 0.5 (0.4–0.7) |
| Some LEMD | 31.4 | 2.4 (2.3–2.5) | 1.1 (0.9–1.3) | 0.9 (0.8–1.1) |
| Severe UEMD | 26.1 | 1.6 (1.4–1.8) | 0.8 (0.6–1.2) | 0.7 (0.5–1.0) |
| Some UEMD | 25.1 | 1.6 (1.5–1.8) | 1.3 (0.9–1.8) | 1.0 (0.7–1.5) |
| Severe HDD | 24.2 | 1.5 (1.3–1.7) | 0.8 (0.6–1.2) | 0.7 (0.5–1.0) |
| Some HDD | 26.1 | 1.6 (1.5–1.8) | 0.8 (0.6–1.2) | 0.8 (0.6–1.2) |
| Mental Illness | 23.5 | 1.5 (1.4–1.7) | 1.4 (1.2–1.8) | 1.2 (0.9–1.7) |

## CLINICAL MEDICINE

**A CRITICAL EVALUATION OF INTERNET MARKETING OF HERBAL WEIGHT LOSS PRODUCTS.** B.H. Ashar[1], R.G. Miller[1], K.J. Getz[1]; [1]Johns Hopkins University, Baltimore, MD *(Tracking ID #52129)*

BACKGROUND: Sales of dietary supplements have skyrocketed over the past few years in parallel with marketing of health products over the Internet. While the Food and Drug Administration has oversight responsibility for supplement labeling, advertising is regulated by the Federal Trade Commission (FTC). In an effort to clarify issues surrounding its truth-in-advertising law, the FTC has developed a guide for the dietary supplement industry that outlines the necessity to be able to substantiate marketing claims and disclose potential safety issues. Ephedra (Ma Huang) is a compound used frequently in herbal weight loss supplements that has been associated with a number of untoward cardiovascular effects. Our study was designed to evaluate Internet web sites for compliance with FTC regulations regarding disclosure of the potential toxicities of ephedra.
METHODS: We conducted a systematic search of the World Wide Web in December 2001 to identify herbal weight loss products for sale on the Internet. We used four search engines (HotBot, Google, Lycos, and Excite) and the search term "herbal weight loss." We developed a site abstraction form to collect data on supplement ingredients. In products containg ephedra, we also examined dosage of ephedra alkaloids and disclosure of potential side effects and contraindications.
RESULTS: We identified and examined thirty-six web sites. Of these, 4 (11%) did not list ingredients. Of the 32 for which ingredients were listed, 29 (91%) contained ephedra. Fifteen (52%) did not list the dosage of ephedra alkaloid contained in the product. Only 13 (45%) listed potential side effects and contraindications. A number of web sites (24%) had obvious misleading or illegible information.
CONCLUSION: A number of herbal weight loss products marketed and sold over the Internet do not comply with truth-in-advertising standards. Specifically, side effects and contra-indications are not listed on a majority of web sites. Ephedra has been linked to adverse health events including hypertension, stroke, and arrhythmia, especially when consumed with other stimulants. The potential for serious harm to consumers is great given the number of people utilizing such products without physician supervision. Reform in Internet advertising of health products is necessary to increase patient safety.

**PHARMACOLOGICAL THROMBOEMBOLIC PROPHYLAXIS IN MEDICAL INPATIENTS: A ROOM FOR IMPROVEMENT.** D. Aujesky[1], E. Guignard[1], A. Pannatier[1], J. Cornuz[1]; [1]University Hospital, Lausanne, Switzerland *(Tracking ID #46229)*

BACKGROUND: Venous thromboembolism is a potentially lethal complication in medical inpatients. According to published recommendations, thromboembolic pharmacological prophylaxis should be given to all inpatients with an elevated (e.g., myocardial infarction, stroke) thromboembolic risk until hospital discharge. In order to evaluate the need for future local guidelines, we performed a retrospective study examining pharmacological thrombo-embolic prevention in the medical ward of a tertiary care hospital.
METHODS: We retrospectively collected data on 227 consecutive patients admitted in the general medical ward during a two month-period randomly selected in the previous calendar year. Depending on the presence of at least one major thromboembolic risk factor, patients were classified as being either at elevated or at low risk for venous thromboembolism. Pharmacological prophylaxis was considered to be adequate if 1) a patient with elevated thromboembolic risk received prophylactic anticoagulation until discharge, and if 2) a low risk patient received no pharmacological prophylaxis.
RESULTS: Out of the 153 (67%) patients presenting one or more thromboembolic risk factors, only 33 (22%) received prophylactic anticoagulation of sufficient duration. Among the 74 patients with no risk factors, 28 (38%) received pharmacological prophylaxis. According to the above mentioned criteria, thromboembolic prophylaxis was adequate in only 79 (35%) patients of the study population. Inadequately treated patients tended to be older than adequately treated patients (mean age 69.4 versus 65.2 years, p = 0.10).
CONCLUSION: Pharmacological thromboembolic prophylaxis was — despite of its proven efficacy — largely underused among inpatients. Furthermore, many patients with no major thromboembolic risk factors received pharmacological prophylaxis. The high prevalence of over- and undertreatment is an indicator of less than optimal care. Quality of care interventions, such as the development of local guidelines, might improve the appropriateness of pharmacological thromboembolic prophylaxis in inpatients.

**UPTAKE OF LOW MOLECULAR WEIGHT HEPARIN USE AND OUTPATIENT TREATMENT FOR DEEP VEIN THROMBOSIS: AN INTERNATIONAL COMPARATIVE STUDY.** D. Aujesky[1], J. Cornuz[1], J.L. Bosson[2], H. Bounameaux[3], J. Emmerich[4], R.D. Hull[5], E. Mackay[5], A. Perrier[3], H. Quan[5], R.T. Tsuyuki[6], W.A. Ghali[5]; [1]University Hospital, Lausanne, Switzerland; [2]Centre Hospitalier Universitaire de Grenoble, Grenoble, France; [3]University Hospital, Geneva, Switzerland; [4]Hôpital Européen Georges Pompidou, Paris, France; [5]University of Calgary, Calgary, Canada; [6]University of Edmonton Hospital, Edmonton, Canada *(Tracking ID #50985)*

BACKGROUND: Home treatment with subcutaneous low molecular weight heparins (LMWH) is as safe and effective as hospital treatment with intravenous unfractionated heparin in many patients with deep vein thrombosis (DVT). We performed a retrospective study to identify clinical predictors of LMWH use and outpatient treatment and to compare the rate of LMWH and outpatient therapy in nine different hospitals located in three countries over time in order to assess the uptake of these new treatment strategies and to evaluate the need for educational and quality interventions (e.g. practice guidelines).
METHODS: We reviewed charts of 3043 patients with DVT in five Canadian, two French and two Swiss teaching hospitals from 1994 to 1998. In a logistic regression model, we explored independent clinical variables associated with LMWH- and outpatient treatment. Adjusted rates of LMWH use and outpatient treatment were compared between hospitals and across countries. Use of LMWH and outpatient treatment over time was compared between hospitals.
RESULTS: The overall rate of LMWH- and outpatient treatment in our population was 34.1% and 15.8%, respectively. The strongest predictor of both LMWH- and outpatient treatment was the year of hospitalization. Presence of many comorbidities (e.g., hypoxemia) was associated with a lower likelihood of outpatient treatment. The adjusted rates of LMWH use and outpatient were highly variable among hospitals (range 8.9 to 66.1% and 0 to 30.4%, respectively) and across countries (range 26.2 to 62.9% and 1.8 to 20.3%, respectively). Although the uptake of LMWH use and outpatient treatment over time varied significantly from hospital to hospital, there was a steady rise in uptake of overall LMWH use and outpatient treatment.
CONCLUSION: There has been a relatively rapid uptake of LMWH use and outpatient treatment for DVT as compared, for example, to the historical example of sluggish uptake of thrombolysis for acute myocardial infarction, and a number of clinical variables appear to be appropriately guiding clinical decisions around these new therapies. However, the marked variation of practice between hospitals/countries indicates that educational and quality

interventions may still be needed to accelerate the uptake of novel approaches to managing DVT.

**PHYSICIAN PERCEPTIONS OF PATIENT ADHERENCE INFLUENCE THE CARE OF DIABETIC PATIENTS.** A. Barden[1], M.G. Weiner[1], L. Takiya[2]; [1]University of Pennsylvania, Philadelphia, PA; [2]University of the Sciences in Philadelphia, Philadelphia, PA *(Tracking ID #51826)*

BACKGROUND: Physician perceptions of patient characteristics including appearance, weight, and socioeconomic status have been shown to influence physician behavior. The purpose of this study was to determine if physician behavior is influenced by perceptions of patient adherence to a medical regimen. We focused on 4 physician behaviors: (a) Number of lab tests ordered (b) counseling (c) interval of follow-up and (d) requesting consultation with another provider.
METHODS: We developed two clinical vignettes that were distributed to internal medicine faculty and residents at an urban teaching hospital. Each of the two vignettes described a diabetic patient with similar objective clinical characteristics suggesting suboptimal control of their diabetes and associated hypertension and hyperlipidemia. The vignettes differed only in the description of patient adherence behaviors. In the first vignette, a non-adherent patient missed appointments, was unsure of his medications and dosing schedule of his medications and not taking his medications regularly. In the second vignette, an adherent patient had a more consistent arrival history and was more knowledgeable of and compliant with his medications. The vignettes were distributed randomly to faculty and residents. Each physician received only one vignette of either the non-adherent or the adherent patient. Respondents were asked to provide a list of any tests ordered, counseling, follow up interval, and consultation.
RESULTS: We obtained 82 responses to 100 surveys from 33 faculty and 49 residents. Forty of the respondents were female. The non-adherent vignette was returned by 43 (52%) physicians whereas the adherent vignette was returned by 39 (48%) physicians. Non-significant trends in follow up plans favored use of consultants in the non-adherent patients (63% vs 44% $p = 0.08$) and in providing counseling (53% vs 38% $p = 0.17$). Residents demonstrated significant differences in the duration of the interval of follow-up favoring earlier follow-ups in the non-adherent group ($p = 0.04$) and greater numbers of lab tests ordered ($p < 0.01$). Differences in the number of labs ordered and the follow-up interval showed similar trends for the faculty but were not statistically significant.
CONCLUSION: The results indicate that physician perceptions of patient adherence may influence resident physician practice more than faculty practice. Residents ordered more laboratory tests, and recommended a shorter follow-up interval for patients who are non-adherent than those who are adherent, while there was a nonsignificant trend for both residents and faculty favoring the provision of counseling and use of consultants for the non-adherent patients. Both the adherent and non-adherent case patients needed similar improvements in their control of diabetes, cholesterol and hypertension. However, these findings suggest that the non-adherent patient with suboptimal disease control is being managed more aggressively than a clinically similar adherent patient.

**A RANDOMIZED TRIAL OF PRIMARY INTENSIVE CARE TO REDUCE HOSPITAL ADMISSIONS IN HIGH UTILIZERS.** K.E. Brown[1], D.A. Fiellin[1], M.C. Chawarski[1], W. White[1], W.H. Sledge[1], P.G. O'Connor[1], J. Levine[2]; [1]Yale University, New Haven, CT; [2]Bronx-Lebanon Hospital Center, Bronx, NY *(Tracking ID #50710)*

BACKGROUND: Case management has not been shown to decrease hospital utilization or improve health outcomes for patients in primary care settings. We hypothesized that a comprehensive medical and psychosocial intervention, Primary Intensive Care (PIC), would reduce hospital utilization and improve functional status, mental health function and medication adherence among primary care patients who require frequent hospital admission.
METHODS: We identified current patients of an urban, academically affiliated hospital-based primary care practice who were high utilizers (≥2 hospital admissions in year prior to recruitment). Patients were excluded for Charlson Comorbidity Index ≥5 or major cognitive impairment. Patients were randomized to PIC or usual care. PIC intervention included an assessment and care plan from a psychiatrist, internist, and social worker. The PIC team APRN served as case manager over the subsequent 12 months and provided services including telephone outreach, health education, and assistance with appointments. Hospital utilization data was collected at baseline and at 12 months using an administrative database. SF-36, PRIME-MD, and a medication adherence scale were conducted at baseline and after one year.
RESULTS: There were no significant differences in baseline clinical or demographic variables between control ($n = 43$) and intervention ($n = 39$) patients. At one year, number of hospitalizations and ED visits were not significantly different between control and intervention patients or between baseline and intervention years (table). The number of clinic visits increased significantly in the PIC group compared to the control group ($p = .026$, f test). At 12 months, functional status (SF36 score: control 89.5 ± 22.6 vs PIC 90 ± 25, p = NS), number of patients reporting active symptoms of depression (control 13 vs PIC 11), and mean score on medication adherence scale (control 1.59 vs PIC 1.22, p = NS) did not differ.
CONCLUSION: We conclude that the PIC intervention did not decrease hospital utilization or improve functional status, mental health function, or medication adherence among primary care patients who require frequent hospital admission.

**PIC Study Outcomes**

| | PIC | | Control | | |
|---|---|---|---|---|---|
| | Pre | Post | Pre | Post | P (f Test) |
| Hosp Admits | 1.72 ± 1.73 | 1.31 ± 1.64 | 2.12 ± 2.05 | 1.74 ± 3.28 | NS |
| ED Visits | 1.92 ± 2.44 | 1.59 ± 1.73 | 3.49 ± 8.66 | 2.86 ± 7.54 | NS |
| Clinic Visits | 6.38 ± 3.95 | 8.41 ± 4.9 | 5.58 ± 3.59 | 5.35 ± 4.64 | .026 |

**DIRECT TO CONSUMER ADVERTISING: HOW MUCH IS ENOUGH?** E.D. Brownfield[1], J. Phan[1], R.M. Parker[1], M.V. Williams[1]; [1]Emory University, Atlanta, GA *(Tracking ID #52412)*

BACKGROUND: Direct-to-consumer (DTC) advertising is a growing multi-billion dollar industry. Yet there is a paucity of information in the medical literature on the quantity, quality, or impact of DTC advertising on health outcomes. Because the actual airtime that DTC advertising occupies is unknown, we undertook this descriptive study to quantify the volume and proportion of advertisements on television that are DTC.
METHODS: We chose one random week to continuously videotape three major networks (ABC, NBC, CBS). From midnight, June 24, 2001 to midnight, July 1, 2001, we recorded each station for twenty-four hours, using three separate VCR's and TV's. This yielded 84 videotapes recorded by extended-play speed. All tapes were reviewed and the name and length in seconds of every commercial was collected and entered into an Excel spreadsheet. All data entry was manually reviewed for accuracy and then by double data reentry using ten percent of the data. Two people independently coded the content of all commercials using 18 categories. When there was disagreement, a third coder performed an independent assessment. We compared the average and total amount of airtime of DTC advertisements to all other advertisements on the three networks.
RESULTS: DTC ads accounted for a total of 642 minutes of airtime for the week (7.9% of all advertisement airtime). Ads for over-the-counter (OTC) and prescription drugs were evenly divided, with 331 minutes (4.1%) and 311 minutes (3.8%), respectively, of total commercial airtime. The average amount of DTC advertising for each network was 8% of all commercial airtime. DTC advertising occupied more airtime than commercials for alcohol, clothing and accessories, lawyers, personal hygiene, and beauty products. All health-related advertisements occupied 1,110 minutes (13.6%) of total commercial airtime. This closely rivaled total airtime with automobile (15.4%) and household and financial (14.4%) advertisements. DTC ads aired a total of 3.8 minutes per hour on television during the sampled week. With Americans watching, on average, 4 hours and 22 minutes of television daily, they are exposed on average to 16.6 minutes of DTC advertising every day.
CONCLUSION: The actual amount of airtime of DTC ads is greater than that of most other popular advertisements. As pharmaceutical companies increase their spending on DTC advertising, patients will increasingly receive medication information via television with uncertain impact on health care and patients' demands for advertised medications.

**SMOKING CESSATION WITHIN A UNIVERSITY INTERNAL MEDICINE CLINIC: A SURVEY OF RESIDENT AND FACULTY PRACTICES, ATTITUDES AND KNOWLEDGE.** N. Bultemeier[1], E. Haney[1], M. Donohoe[1]; [1]Oregon Health and Science University, Portland, OR *(Tracking ID #52402)*

BACKGROUND: We evaluated Internal Medicine residents' and faculty preceptors' attitudes, practices and knowledge about smoking cessation, with regard to the Agency for Healthcare Research and Quality (AHRQ) guidelines. Our goal was to gather data for targeting further clinical and educational interventions.
METHODS: We surveyed 27 Internal Medicine residents and 14 faculty preceptors in a university based clinic. Participants responded to questions about use of specific techniques to help patients become non-smokers, use of medical information resources, perceived barriers to counseling, and attitudes toward smoking cessation. They completed a 15-point knowledge assessment.
RESULTS: 21 residents and 10 faculty preceptors (75%) completed the survey. Residents were more likely than faculty to report seldom or never use of the following smoking cessation techniques: scheduling a follow-up visit (24% vs. 10%), setting a quit date (33% vs. 10%), prescribing bupropion (38% vs. 10%), referring to a structured smoking cessation program (67% vs. 0%), and providing self-help materials (71% vs. 20%). Medical information resources used often or occasionally by faculty and residents were other faculty (77%), the Pocket Pharmacopeia (58%), the pharmacist (58%), and other residents (55%). Only 26% of respondents reported using the AHRQ guidelines often or occasionally. The most frequently reported barriers to smoking cessation interventions noted by faculty and residents were forgetting to bring up smoking (64%), lack of patient interest in quitting (54%), more pressing patient issues at the visit (54%), and lack of clinic resources (38%). Residents were less likely than faculty to report confidence in their ability to counsel patients on smoking cessation (62% vs. 100%). Only 23% of residents and faculty agreed that they are "quite effective" at getting patients to stop smoking. Both residents and faculty acknowledge frustration when counseling patients about smoking cessation (61%). Most (>50%) were unable to correctly identify common insurance carriers' coverage for pharmacologic aids.
CONCLUSION: Residents and faculty self-report underutilizing commonly recommended smoking cessation techniques. Interestingly, faculty report higher rates of "good practices," but do not appear to be transmitting these practices to residents. Both faculty and residents acknowledge frustration with and perceive lack of effectiveness at counseling patients on smoking cessation. Low knowledge scores on prescription insurance coverage may reflect our fragmented and constantly changing health care system. Interventions to improve self-efficacy among physicians and to implement systematic approaches to providing support for smoking cessation activities may improve adherence to AHRQ guidelines.

**DIAGNOSIS AND MANAGEMENT OF OPIOID ANALGESIC MISUSE: A SURVEY OF PRIMARY CARE PROVIDERS.** A.R. Chandrasena[1], P.G. O'Connor[1], D.A. Fiellin[1], M.C. Reid[1]; [1]Yale University School of Medicine, New Haven, CT *(Tracking ID #50746)*

BACKGROUND: Primary care providers (PCPs) often cite concerns regarding the potential for opioid analgesic misuse (OAM) among chronic non-cancer pain patients on opioid medications, yet little information exists regarding PCPs ability to diagnose or manage OAM. We surveyed PCPs to determine (1) their self-rated ability to diagnose OAM, (2) patient behaviors they felt constituted evidence of OAM, and (3) strategies used to manage patients suspected of OAM.
METHODS: Participants included resident physicians (RP) in their medicine continuity clinics and attending physicians (AP) at the primary care center of an urban teaching hospital. A self-administered questionnaire was used to obtain information on participants' demographic

status, prior formal training in the management of chronic non-cancer pain and/or use of opioids, as well as self-rated ability to diagnose OAM. Open-ended questions were used to obtain data on our remaining outcomes. Two reviewers independently coded open-ended responses and disagreements were resolved by consensus.
RESULTS: Of 56 PCPs surveyed, 52 (92.9%) responded. A majority was male (55.8%), the mean (range) number of years since medical graduation was 4.33 (1 – 33) and 71.2% were RPs. Only 25.0% rated their ability to diagnose OAM as excellent or good. APs were more likely to rate their ability to diagnose OAM as excellent or good than RPs (60.0% vs. 18.9%), but this difference was not statistically significant (P = 0.22). Prior (vs. no) formal training in the management of chronic noncancer pain or use of opioids was associated with non-significantly greater self-rated ability to diagnose OAM (42.9% vs. 22.2%, P = 0.52, and 36.8% vs. 30.0%, P = 0.75, respectively). Commonly reported patient behaviors cited as evidence of OAM included multiple requests for early refills (61.5%), reports of lost/stolen medications (40.4%), use of multiple sources to obtain opioids (34.6%), and increasing medication requirements (25.0%). Strategies commonly used to manage patients suspected of OAM included confronting patients to discuss concerns about OAM (65.4%), implementing opioid contracts in those lacking contracts (25.0%), discontinuing opioid medications (15.4%), and documenting OAM via pharmacies and/or other providers (15.4%).
CONCLUSION: Most PCPs lacked confidence in their ability to diagnose OAM, yet the majority reported both patient behaviors they felt were consistent with OAM and strategies for managing patients suspected of OAM. Patient behaviors judged by PCPs to be consistent with OAM in our study will be examined prospectively to determine whether these factors are independent predictors of OAM.

**THE EFFECT OF ANTIHYPERTENSIVE MEDICATIONS ON PULSE PRESSURE IN THE ELDERLY: ANALYSIS BASED ON THE NHANES III SURVEY.** J.J. Chang[1], R. Arons[1], J. Luchinger[1]; [1]Columbia University, New York, NY *(Tracking ID #51131)*

BACKGROUND: Pulse pressure (PP) has been shown to be an independent predictor of cardiovascular events, particularly in the elderly. However, few data have been published on the comparative effects of different classes of antihypertensive medications on PP in the older population. The purpose of this study was to determine whether significant differences exist in systolic (SBP), diastolic (DBP), and pulse pressures of persons receiving treatment for hypertension (HTN) with different categories of commonly prescribed antihypertensive medications.
METHODS: We analyzed data from the third National Health and Nutrition Examination Survey (NHANES III). We identified all individuals with HTN, aged 60 and older, who were taking one or two of the commonly prescribed medications to include beta blockers (BB), diuretics, calcium blockers (CB), and angiotensin converting enzyme inhibitors (ACEI). Subjects who may have been taking these medications for reasons other than HTN (myocardial infarction, congestive heart failure, and diabetes) were excluded. Additionally, we evaluated the following potential confounders: age, sex, race, smoking, BMI category, insurance status, income category, and urban residence. We used multiple linear regression analysis to assess the impact of a particular medication on SBP, DBP, and PP. All analyses were performed using SAS version 8.2 and SUDAAN.
RESULTS: Our sample included 937 subjects that met the inclusion criteria, which was weighted to represent 6,985,438 individuals in the United States. The mean age was 71 years (range 60 – 90) and 64% were female. The mean (SE) SBP, DBP, and PP were 147.0 (1.3) mmHg, 77.4 (0.8) mmHg, and 69.6 (1.3) mmHg. Two thirds of the subjects were only on one medication with diuretics (27%) being the most common. Compared to individuals on BB, subjects taking diuretics had lower adjusted mean SBP (difference = 11.1 mmHg, p = .0001) and mean PP (difference = 8.6 mmHg, p = .005). The mean SBP and PP for CB and ACEI were not significantly different from BB. No significant differences in mean DBP was noted for any of the 4 medications. In the fully adjusted regression model for those on one or two medications, subjects on a diuretic alone, or a combination medication including a diuretic, or a combination of CB and BB had significantly lower SBP compared to the referent group (BB). However, in regard to PP, only diuretics alone were associated with a lower PP than the referent group.
CONCLUSION: Among older individuals taking one or two commonly prescribed BP medications, only those on diuretics alone had a significantly lower PP compared to BB. Whether this observed difference in PP may be due to unique properties of diuretics, and whether it results in improved cardiovascular outcomes merits further research.

**BLEEDING COMPLICATIONS AMONG PATIENTS RECEIVING GROUP IIB-IIIA INHIBITORS DURING PERCUTANEOUS CORONARY INTERVENTIONS.** S. Chebrolu[1], M. Ahmed[1], D. Mehta[1], S. Dadkhah[1]; [1]St. Francis Hospital, Evanston, IL *(Tracking ID #50704)*

BACKGROUND: Use of Group IIb-IIIa inhibitors has been shown to reduce rate of adverse outcomes in patients undergoing percutaneous coronary interventions (PCI). However, they have been associated with increased risk of bleeding. We evaluated the incidence and factors responsible for these factors responsible for these complications in our tertiary level community-based teaching hospital.
METHODS: In the period between June 1999 and March 2000, a total of 244 patients received either Eptifibatide or Abciximab with PCI. All bleeding episodes were graded on the basis of GUSTO criteria into severe, moderate and minor bleeds. All patients received Aspirin, Clopidogrel and Heparin. 104 patients received Abciximab (0.25 mg/kg bolus followed by 0.125 mcg/kg/min for 12 hours). 140 patients received received Eptifibatide (135 or 180 mcg/kg bolus followed by infusion of 0.5 or 0.2 mcg/kg/min for 24 hours. All data collection was performed retrospectively and analyzed.
RESULTS: The incidence of bleeding episodes in patients who received Abciximab was 27.8%. It was 22% among those who received Eptifibatide. There was no statistical significance in the incidence of total number of bleeding episodes among both the patient groups (p = 0.30). Nevertheless, there was a trend towards increased bleeding episodes in patients aged 75 and above (p = 0.09).
CONCLUSION: Both the Group IIb-IIIa inhibitors are associated with equivalent rates of total bleeding complications. However, the trend of excessive bleeding in patients >75 years should be investigated further. At the present time, the individual cost of acquisition and administration should be the deciding factor that should guide which one of the IIb-IIIa inhibitors is used preferentially in PCI.

**"PATIENT-CENTEREDNESS" AND QUALITY OF CARE: THE ASSOCIATION BETWEEN PHYSICIAN COMMUNICATION AND PATIENTS' PERCEPTIONS OF HOSPITAL CARE QUALITY.** S.L. Clever, L. Jin[1], W. Levinson[2], D. Meltzer; [1]University of Chicago, Chicago, IL; [2]University of Toronto, Chicago, IL *(Tracking ID #52206)*

BACKGROUND: Hospitals across the US are implementing programs to support patient-centered care but there are few data to support this practice. Physicians' use of patient-centered communication has been associated with outpatient satisfaction, but its relationship to patients' perceptions of the quality of inpatient care is not known.
METHODS: Patients were eligible if they were admitted to the internal medicine service at the an urban university-affiliated tertiary care center between July 1, 1997 and June 30, 2000. We interviewed them 1 month after discharge and used chart and administrative data to obtain diagnoses and comorbidities. At the follow-up interview, patients used a Poor to Excellent (1 – 5) scale to rate their inpatient physician on the following patient-centered communication elements: degree to which the physician 1) treated them as equals; 2) listened to their story; 3) discussed options with them; and 4) encouraged them to ask questions. We also asked patients about elements of nursing care, level of coordination of care among physicians and nurses, level of pain in the hospital, and current physical functioning. They then rated the quality of the care they received in the hospital on a Poor to Excellent (1 – 5) scale. We then used a multivariable linear regression model that included the communication variables and other variables known to affect satisfaction as predictors of patients' perception of the quality of care they received.
RESULTS: 3329 patients were included in the analysis. Each communication element was independently positively associated with perceived hospital care quality (Table). A one-point increase in each communication variable corresponded to an increase of 0.64 points in the patient's perceptions of the quality of care in the hospital.
CONCLUSION: All four elements of patient-centered communication were strongly related to patients' perceptions of the quality of inpatient care. Simple physician communication skills, such as discussing treatment options and inviting questions, may have a substantial effect on patients' perceptions of the quality of inpatient care.

| Variable | Coefficient (95% CI) | P |
|---|---|---|
| Treated patient on same level | 0.22 (0.18 – 0.26) | <0.001 |
| Listened to patient's story | 0.14 (0.10 – 0.19) | <0.001 |
| Discussed options with patient | 0.12 (0.08 – 0.16) | <0.001 |
| Encouraged patient to ask questions | 0.11 (0.06 – 0.15) | <0.001 |
| Trust in nurses | 0.37 (0.32 – 0.42) | <0.001 |
| Pain in hospital | −0.03 (−0.05 – −0.01) | <0.01 |
| Charlson score | −0.004 (−0.02 – 0.006) | 0.41 |

**META-ANALYSIS OF THE BENEFITS OF ANTI-THROMBOTIC THERAPY IN THE PATENCY OF VASCULAR GRAFTS AFTER LOWER EXTREMITY BYPASS SURGERY.** T.C. Collins[1], J. Souchek[1], R.J. Beyth[1]; [1]Baylor College of Medicine, Houston, TX *(Tracking ID #52111)*

BACKGROUND: The benefit of the use of antithrombotic therapy to maintain graft patency after lower extremity revascularization is controversial. We performed a meta-analysis to ascertain the benefit of antithrombotic therapy in the patency of vascular grafts following lower extremity bypass surgery.
METHODS: We identified 194 articles using Medline and hand searches of relevant journals. We used keywords peripheral vascular disease, peripheral arterial disease, clinical trials, and antithrombotics. One hundred and ten articles addressed the use of antithrombotic therapy and PAD, of these 21 were randomized control trials involving humans.
RESULTS: Sixteen articles met the inclusion criteria of a randomized trial of antithrombotic therapy in the patency of vascular grafts. Of the 16 studies we abstracted, 12 were comparisons of an anti-thrombotic agent with placebo or control, 3 studies compared anticoagulant with antiplatelet therapy, and 1 compared two antiplatelet agents. Eleven studies contained occlusion rates at 12 months or more after surgery, 1 had only 10-day post surgery rates of occlusion. Rates among the 11 studies were heterogeneous which resulted in the exclusion of two studies that were small and included both first and second vascular surgeries along with re-randomization after the initial graft occlusion. The remaining 9 studies were homogeneous in spite of differing times of follow-up. Both fixed-effects (Peto) and random effects (DerSimonian and Laird) analyses showed the risk of occlusion in the treated group was half that in the placebo or control group. The odds ratio (OR) for treated patients relative to control patients was 0.49 (95‰ CI 0.34, 0.70) for the 9 studies with outcomes at 12 months or longer. The OR was 0.50 (95‰ CI 0.29, 0.87) in the 5 studies with 12-month rates. At 24 months, the OR was 0.58 (95‰ CI 0.39, 0.88), based on 3 studies, and at 36 months, the OR was 0.77, which was not significantly different from 1 at the 0.05 level. Two studies contained an 18-month occlusion rates yielding an OR of 0.55, which was not significant.
CONCLUSION: Anti-thrombotic therapy decreases the risk of graft occlusion after vascular surgery by 50‰ at 12 months and is still protective at 24 months after surgery.

**GENDER DIFFERENCES IN THE CONTROL OF BLOOD PRESSURE IN DIABETIC PATIENTS.** M. Duggirala[1], R. Cuddihy[1], M. Cuddihy[1], M.A. Nyman[1], J. Naessens[1], V.S. Pankratz[1]; [1]Mayo Clinic, Rochester, MN *(Tracking ID #50686)*

BACKGROUND: Diabetes is an important contributor to the development of Coronary Heart Disease (CHD) in men and women, but the negative impact of diabetes on CHD is

higher in diabetic women compared to diabetic men. Women with diabetes lose the gender-related advantage and have higher relative risk of coronary death compared to diabetic men. The objective of this study was to determine the gender-related differences in the control of blood pressure as a possible explanation for the increased CHD mortality in diabetic women.
METHODS: The Disease Management Strategies group at the Mayo Clinic created an electronic registry of all patients with diabetes who were seen for primary care at the institution. This registry excludes subjects who were mis-classified as having diabetes through a validation process entailing review of patients' chart by a nurse. Using this registry patients with type 1 and type 2 diabetes, aged ≥18 were identified. Individuals whose Primary Care Provider (PCP) has seen exclusively male or female patients and those that refused research authorization were excluded from the study. All available blood pressure readings for the period 06/01/1999 – 05/31/2001 were collected and mean blood pressure was calculated for both men and women. The mean was weighted by the number of blood pressure readings and compared between men and women, after adjusting for PCP in order to offset the provider variability. The mean blood pressure values were compared using analysis of variance methods.
RESULTS: There were a total of 3,184 patients included in this study, of which 53.8% were men (mean age 65 ± 12.5) and 46.2% were women (mean age 64 ± 14.2). The distribution of blood pressure values showed a mean and median of 136.5/75 and 136/75 for men, 139.4/75.2 and 138/76 for women. The 25th percentile and 75th percentile values were 123/68 and 148/82 for men, 126/68 and 150/82 for women respectively. The weighted mean systolic blood pressure remained higher in diabetic women compared to diabetic men after adjusting for the PCP. The PCP-adjusted means were 134.9 in men (95% CI 134.1 – 135.7) vs 137.9 in women (95% CI 137.0 – 138.8). The difference in the means was statistically significant (P = 0.0001). No statistically significant difference was detected in the diastolic blood pressure, with the PCP-adjusted means being 76.1 in men (95% CI 75.6 – 76.6) vs 76 in women (95% CI 75.5 – 76.5; P = 0.55).
CONCLUSION: This study demonstrated that mean systolic blood pressure was significantly higher in diabetic women compared to diabetic men. Although statistically significant, the higher systolic blood pressure alone is insufficient to explain the increased CHD mortality in diabetic women. However, the higher systolic blood pressure may contribute to the increased CHD mortality in diabetic women. Further studies are needed to determine the differences in the control of various CHD risk factors between diabetic men and women.

**FEELING TIRED: RELATIONSHIP OF PHYSICAL, EMOTIONAL AND MENTAL FATIGUE TO QUALITY OF LIFE AND HEALTH STATUS.** M.B. Duke[1], J.F. Wilson[1], M. Andrykowski[1], R. Lightner[1]; [1]University of Kentucky, Lexington, KY *(Tracking ID #52385)*

BACKGROUND: Fatigue is a common symptom that may accompany illness or may occur as a side effect of treatment for disease. It is an important determinant of quality of life. Typical measures of quality of life conceptualize fatigue along a single dimension of physical tiredness. We hypothesized that mental and emotional dimensions of fatigue in addition to that of physical tiredness, would explain some of the variance in quality of life and health status measures. We also hypothesized that a positive dimension of fatigue, being "tired but happy" would explain unique variance in these measures.
METHODS: Using a random-digit dialing statewide telephone survey, we administered the MOS-20 measure of health status and quality of life indicators, in a Cantril ladder format, to 661 adults (57% female, 78% with at least a high school education). As measures of fatigue, we asked how often during the past month respondents felt physically tired, mentally tired, emotionally tired and tired but happy (called "happy" fatigue).
RESULTS: Correlations between physical tiredness and mental (r = .29), emotional (r = .35) and "happy" fatigue (r = .30) were statistically significant (p < .001). Hierarchical multiple regression analysis was performed with MOS-20 health status subscales and global ratings of current and future quality of life as dependent variables, and with physical, mental, emotional and "happy" fatigue entered sequentially as independent variables. Emotional fatigue explained additional variance on all subscales of the MOS-20. Mental fatigue explained additional variance on the mental health subscale and on global ratings of current quality of life. After all other variables were entered, "happy" fatigue explained additional variance on physical functioning, social functioning, mental health, and both current and future global ratings of quality of life.
CONCLUSION: We interpret the findings as evidence for the importance of assessing multidimensional aspects of fatigue when examining the effects of illness and disease treatment on quality of life and health status.

**IMPACT OF INTRAVENOUS HEPARIN ADMINISTRATION DURING WARFARIN TITRATION ON LENGHT OF STAY.** A.S. Dunns[1], M.V. Capasso[1], M. Beran[1], D. Bioh[1]; [1]Mount Sinai School of Medicine, New York, NY *(Tracking ID #51903)*

BACKGROUND: Patients who are admitted to the hospital on chronic oral anticoagulants (OAC), or started on OAC in the hospital, may have a subtherapeutic protime when their acute medical illnesses are resolved and they are otherwise ready for discharge. How often discharge is delayed due to the administration of intravenous (IV) heparin during warfarin titration is unknown.
METHODS: A retrospective chart review was performed examining admissions to the general medicine, gastroenterology, cardiology, neurology, and oncology wards of The Mount Sinai Hospital, NY, in 1998. Three hundred seventy admissions were randomly selected from a list of 2000 admissions during which patients had received warfarin. Physician, nursing, and social work notes were reviewed. Charts were abstracted for demographics, admission diagnoses, indication for OAC, and inpatient treatments and management. Patients were defined as having had a delay of discharge if hospitalization was continued to administer IV heparin and no other potential reason for hospitalization was identified, including the monitoring of vital signs or laboratory values, performance of other medical evaluation or treatment, or provision of home services.
RESULTS: Of 370 charts requested, 351 (94.9%) were reviewed. Four were excluded due to the patient never having received warfarin during the hospitalization. The mean age was 67.3 years (range: 21 – 97); 50.7% were male; 57.6% were Caucasian, 18.2% were African American, and 16.4% were Hispanic. Admission diagnoses included 58 patients (16.7%) with acute thromboembolism (TE) (e.g. DVT, CVA), 17 (4.9%) patients with bleeding and 272 (78.4%) with conditions unrelated to TE or bleeding. Of the 347 admissions reviewed, 80 patients (23.1%) experienced a delay of discharge due to IV heparin administration. Of patients experiencing a delay, the mean delay was 4.0 days (range: 1 – 25). A delay was noted for 20.8% (48/231) of patients who were on warfarin prior to admission. Of patients admitted for an acute TE, 53.4% (31/58) experienced a delay of discharge.
CONCLUSION: Patients who are admitted on warfarin or who have warfarin initiated in the hospital often have discharge delayed due to the administration of IV heparin during warfarin titration. Further research is needed to determine how often these delays are avoidable, and whether outpaient administration of low-molecular-weight heparin could safely decrease length of stay for selected patients.

**WHO GIVES PALLIATIVE CARE TO TERMINALLY ILL PATIENTS? A SURVEY OF PRIMARY CARE PHYSICIANS.** N.J. Farber[1], S.Y. Urban[2], V.U. Collier[3], M. Metzger[1], J.L. Weiner[4], E.G. Boyer[5]; [1]Christiana Care Health System, Wilmington, DE; [2]New York University, New York, NY; [3]Christiana Care Health System, Newark, DE; [4]Drexel University, Philadelphia, PA; [5]St. Joseph's University, Philadelphia, PA *(Tracking ID #50346)*

BACKGROUND: Primary care physicians are often called upon to provide palliative care for their patients. We surveyed primary care physicians about their involvement and perceived skills in palliative care.
METHODS: A survey instrument asked how frequently practicing internal medicine and family practice physicians from across the US perform 10 palliative care items (based on the AMA EPEC program) for patients. Subjects were asked to rate their skills in each area. The association of demographic variables with the number of palliative care items performed, and their perceived proficiency were analyzed via student's T tests or ANOVA as applicable. All significant variables were entered into multiple regression models.
RESULTS: Of the 972 surveys which were received by subjects, 462 (48%) were completed and returned. A majority of physicians always or frequently performed all 10 palliative care items, and felt they performed 8 of 10 items in an excellent or good manner (p < .001). Attending to the spiritual needs of patients and addressing their economic problems were the only two items performed in an excellent or good manner by less than 50% of respondents. There were significant differences between frequency and skill of performance in 8 of the 10 palliative care items. Interest in palliative care was associated with an increased frequency in performing palliative care items (p = .036), while training in palliative care (p = .05) and the percent of patients who are provided palliative care by respondents (p < .001) was associated with better perceived performance. Only 36% of respondents had received any training in palliative care.
CONCLUSION: By their own report, internists and family practitioners generally provide palliative care to patients, but feel their skills are lacking especially in spiritual and economic aspects. Training in palliative care can improve this important type of care to patients at the end of life. Educational opportunities about palliative care such as the EPEC program should be provided to practicing physicians; and curricula designed for medical students and residents.

**ELEVATED SERUM PROTEINS IN PATIENTS INFECTED WITH HEPATITIS C VIRUS.** J. Garcia[1]; [1]Wayne State University, Troy, MI *(Tracking ID #45833)*

BACKGROUND: Patients with Hepatitis C have elevated levels of some Immune Inflammatory Response Associated Protein (IIRAP) such as soluble intracellular adhesion molecule (sICAM-1), tumor necrosis factor alpha (TNF-A), Interleukin 2 receptor(IL-2R), IL-2 and IL-12.Lower levels of IIRAP are present in many patients after successful interferon(INF) and Ribavirin(RIB) therapy.
METHODS: Retrieved serum of 45 subjects (30 with hepatitis C and 15 non-infected). IIRAP were measured with ELISA using reagents from R and D systems. Response was defined as non-detected HCV RNA at 24 weeks and 48 weeks and no response as positive HCV RNA at 24 weeks. Longitudinal serum samples on patients were analyzed for TNF-a, sICAM-1 and IL-2R at 0,4,12,16 and 24 weeks.
RESULTS: sICAM-1 levels were detected in 11 out of 11(100%) of patients and declined in responders 2/2 as compared with non-responders 0/4. Soluble IL-2R levels increased during INF/RIB treatment in the majority of responders 6/7 and didn't increase in non-responders. IL-2, IL-12 and TNF-a were measured but not detected in all patients.
CONCLUSION: IIRAP levels were higher in patients with hepatitis C when compared with non infected individuals but levels didn't differ between responders and non-responders at baseline.sICAM-1 declined in responders during INF/RIB therapy (decreased inflammatory activity?), sIL-2R increase in responders during INF/RIB therapy(increased immune activity?), TNF-a levels were variable in responders and non- responders during INF/RIB therapy. This supports the hypothesis that changes in immune and inflammatory activity offer clues to mechanism of action of antivirals.

**DIGOXIN ARRYTHMOGENICITY IS RELATED TO ALTERATION IN ELECTRO-CARDIOGRAPHIC PARAMETERS IN PATIENTS WITH CONGESTIVE HEART FAILURE. A PROSPECTIVE CASE CONTROL STUDY.** M.W. Ghobrial[1], K. Narasimhan[1], S. Singh[1], S Jacob[1], T. Phiambolis[1]; [1]Mercy Catholic Medical Center, Aldan, PA *(Tracking ID #46738)*

BACKGROUND: Digoxin is thought to precipitate all types of arrhythmia and to worsen mortality. Its effects on electrocardiographic (ECG) parameters and dispersions in patients with congestive heart failure (CHF) have not, to date, been studied.
The aim of this study is to examine the effects of digoxin on ECG indices in patients with CHF and recognize its potential injurious effects in this population.
METHODS: We studied 78 consecutive patients admitted with CHF. Thirty-one patients were medicated with digoxin as out-patients and 47 were not. A digitized 12-lead surface ECG measured PR, QRS, QT, and QTc from all patients. P, PR, QRS, and QT dispersions (d) were calculated as the difference between the minimal and maximal values in each of the 12 leads. Using multiple linear regression, the effect of digoxin on each of these values was adjusted for the presence of other co-morbid conditions, demographic data, and the intake of other cardiac medications.

RESULTS: Results are summarized in table 1. Patients medicated with digoxin manifested a significant prolongation of QRS and QT dispersions and a statistically insignificant prolongation of PR, QRS, QTc, and PR(d).
CONCLUSION: Digoxin worsens ventricular depolarization and repolarization inhomogeneity in patients with CHF. These effects may contribute to the increased arrhythmia and/or mortality incidence observed in these patients.

**Table 1.**

| | Cases (ms) | Control (ms) | P Value |
|---|---|---|---|
| PR | 172.8±53.4 | 158.4±27 | 0.36 |
| QRS | 125.8±43.4 | 107.8±28.4 | 0.27 |
| QT | 381.8±72.8 | 384.9±56 | 0.63 |
| QTc | 453±51.2 | 447±34.8 | 0.32 |
| P(d) | 23±6.9 | 23.9±10.3 | 0.22 |
| PR(d) | 40.25±8.5 | 32.3±14.6 | 0.11 |
| QRS(d) | 52.74±12 | 43.2±10.8 | 0.0001 |
| QT(d) | 59.8±13.1 | 55 ±12.4 | 0.001 |

**DEVELOPMENT AND ASSESSMENT OF AN INTERVENTION TO IMPROVE ADHERENCE TO ANTIRETROVIRAL THERAPY (ART) BY ENHANCING PATIENT INVOLVEMENT** C. Golin[1], J.A. Earp[2], L. Howie[2], M. Adamian[2], L. Shain[2]; [1]UNC Schools of Medcine and Public Health, Chapel Hill, NC; [2]UNC School of Public Health, Chapel Hill, NC *(Tracking ID #52256)*

BACKGROUND: Although adherence to ART is a critical determinant of clinical outcomes for HIV-infected patients, we know little about the effectiveness of adherence interventions. In other settings, enhanced patient involvement in medical decision-making has improved adherence, but has not been tested for patients with HIV. We developed and tested an intervention to improve patients' ART adherence by enhancing their involvement in medical decision-making.
METHODS: Based on a conceptual model, we designed a patient audiotape, workbook and motivational interviewing (MI) session to improve ART adherence by modeling patient involvement and enhancing self-efficacy to take ART. We administered the audiotape and workbook to 2 groups of 20 HIV+ clinic pts and interviewed them about their experiences with the intervention. The second group was also administered an MI session that was audiotaped, transcribed and content-analyzed. Further, we enrolled 56 HIV+ pts failing current ART (a viral load increase to detectable or >0.5 log) in a 12-week randomized, controlled trial, comparing changes in health behavior of pts receiving the intervention tape/book/MI with that of controls receiving an informational tape/book/session. Every 4 weeks we asked pts to free list any changes they had made in their life since their last study visit and compared the number reporting changes in ART adherence using chi-square statistics.
RESULTS: Mean age was 40 with: 80% African-American; 40% had <high school degree; 70% made <$10K/yr. 95% felt the intervention was very helpful and 50% planned to ask their doctor more questions about their medications. In pilot group 1: 80% were more confident in their ability to take ART; 80% more likely to follow their prescriptions exactly; and 75% intended to begin using a medication calendar. Overall in the pilot MI, pts chose to discuss medication-taking (67%), communication with their doctor (22%), and side effects (11%) and 56% said their lack of understanding how to take ART was a barrier to their health. In the main study, at week 4, 10/28 intervention pts reported an improvement in taking ART compared with 1/28 controls (36% vs 4%) ($\chi^2$ = 6.57, p < 0.025). At week 12, among the 37 pts completing to date, although 50% in both groups reported setting a goal to make a change, 8/19 intervention pts reported specific medication-taking strategies they used to achieve goals compared with only 1/18 controls ($\chi^2$ = 9.02, p < 0.025). 83% of intervention pts' goals were related to taking ART versus 40% of controls' $\chi^2$ = 3.43, p < 0.05).
CONCLUSION: We have developed a useful, acceptable multidimensional tool to improve adherence to ART by enhancing patient involvement. Further testing of its effects on objectively measured adherence is warranted.

**GABAPENTIN: IS IT BEING USED APPROPRIATELY?** C.B. Good[1], N. Brucker[2], R. Bhattacharya[3], M.P. Mangione[2]; [1]Center for Health Equity Research and Promotion, VA Pittsburgh Healthcare System, University of Pittsburgh, Pittsburgh, PA; [2]VA Pittsburgh Healthcare System, Pittsburgh, PA; [3]University of Pittsburgh School of Medicine, Pittsburgh, PA *(Tracking ID #51945)*

BACKGROUND: Although gabapentin (GB) is FDA approved only for seizures, it has gained wide popularity for other indications. Evidence for efficacy of GB in treating pain exists for diabetic (DM) neuropathy and post herpetic neuralgia (PHN); uses for other off-label indications are not well supported by clinical trials. We sought to determine patterns of use of GB, with a focus on pain indication.
METHODS: Pharmacy records were searched for year 2000 for patients receiving GB at the Pittsburgh VA Healthcare System. Medical records were reviewed by a registered nurse to identify indications for use, response to therapy, other treatment modalities, and additional clinical features.
RESULTS: 393 patients were identified from pharmacy files. Average age was 61 years. Only 4% were treated for seizure disorder; 16% for psychiatric disorder. 270 patients (69%) received GB for a pain indication. Average dose of GB for pain was 1022 mg; 61% of patients received 900 mg daily or less. 24% of pain patients had DM neuropathy, 4% had PHN; the rest of patients had a wide variety of pain syndromes. 32% of pain patients had previously received tricyclic antidepressant therapy; 52% received NSAIDs, and 33% received narcotic analgesia. Overall, 53% of pain patients were receiving some other pain treatment modality; 14% had never received any other pain treatment modalities. Only 40% of patients had a documented improvement to GB therapy; 32% of patients on low dose GB therapy (900 mg or less daily), compared to 58% of those on higher dose therapy (1800 mg daily or more), p < .005.
CONCLUSION: GB is usually prescribed for off-label indications. Many patients receive GB for indications that are poorly supported by evidence, such as psychiatric disorders, or non-neuropathic pain disorders. Additionally, when used for pain indications that are supported by evidence, patients frequently receive low doses, and response to therapy is not documented. Clinicians should target appropriate patients for therapy with GB, assess response to therapy and titrate dose appropriately, and discontinue drug for nonresponders.

**CHEST PAIN IN THE CLINIC: DOES THIS PATIENT HAVE CORONARY DISEASE?** A. Granel[1], J. Ortega[2], O. Bazzino[2], M. AcuñA[2], J. Krauss[2], C. Boissonet[2], F. Rubinstein[2]; [1]Unidad de Medicina Familiar y Preventiva, Servicio de Cardiologia, Hospital Italiano, Buenos Aires, Capital Federal, Argentina; [2]Hospital Italiano, Buenos Aires, Capital Federal, Argentina *(Tracking ID #51725)*

BACKGROUND: Although chest pain (CP) is a frequent complaint in the office, variables suggestive of coronary heart disease (CHD) have not been clearly established in this setting, and the information is extrapolated from selected populations presenting to emergency wards or referred for angiographic procedures.
METHODS: We conducted a prospective cohort study which included patients visiting the primary care (PC) or cardiology (CG) clinic with CP within the last 3 months in whom, based on clinical features, the physician could not clearly rule out CHD. A detailed questionnaire about coronary risk factors, CP characteristics and an electrocardiogram (EKG) was obtained at baseline. Patients were then followed for 6 months and the main outcome was the diagnosis of CHD.
RESULTS: We included 220 patients (157 from the PC and 63 from the CG clinic). Median follow up was 284 days. Baseline characteristics: Age 61 years ±13.8, Females 59.5%, History of CHD 20.9%, Hypertension 52%, Diabetes 10 %, Hypercholesterolemia 38%, Smokers 19%, EKG ischemia 10.5%. CHD was diagnosed in 68 patients (30.9%), in 22 (10%) a diagnosis could not be established. Of the 68, 40 patients (62.5%) were defined as having low risk angina and 24 patients angina of intermediate and high risk, and non Q wave infarction. During follow up, 8 coronary events were observed. Two patients who were initially considered non CHD, developed angina during follow up. In multivariate analysis, predictors associated with CHD were hypertension OR 2.16 (IC95% 1.1 – 4.3), history of CHD OR 3.5 (IC95% 1.6 – 7.6), substernal pain 3.3 (IC95% 1.6 – 7), relief with rest 2.8 (IC95% 1.4 – 5.5) and EKG ischemia 4.5 (IC95% 1.6 – 12.5). Pain radiation, tobacco use and cholesterol level were not related to CHD.
CONCLUSION: CHD is frequent among patients presenting with CP in the clinic setting and they share several predictors typically described for other populations. Fortunately most of them are low risk anginas and have few events in the follow up. Nevertheless, this model should be validated in a larger group of patients.

**EVALUATION AND TREATMENT OF ACUTE BRONCHITIS AT AN ACADEMIC TEACHING CLINIC.** K. Hall[1], M. Nadkarni[1], J. Philbrick[1]; [1]University of Virginia Health System, Charlottesville, VA *(Tracking ID #51714)*

BACKGROUND: Randomized controlled trials have demonstrated that antibiotics provide no benefit for acute bronchitis, yet 55 – 90% of patients who receive this diagnosis are treated with antibiotics. Given the substantial data against antibiotics for acute bronchitis, it could be expected that physicians at evidence-based academic teaching facilities would be less likely to prescribe antibiotics. However, no data of antibiotic use for acute bronchitis in this setting has been published.
METHODS: Charts of all patients seen between January 1, 2000 and October 25, 2000 who received an ICD-9 diagnosis of acute bronchitis or upper respiratory infection (URI) at the University of Virginia general medicine clinic were reviewed. Patients were excluded if they had no cough, COPD, symptoms >3 weeks, or antibiotics for another reason. Statistical analysis was performed using SAS Version 8.1.
RESULTS: Of the 160 patients included in this study, 105 (66%) received an antibiotic. Multivariate analysis revealed that patients with increasing age (p = 0.002), purulent cough (p = 0.003), abnormal exam (p = 0.003), and comorbidities (p = 0.03) were most likely to receive an antibiotic. Smoking, duration of symptoms, gender, and race did not predict antibiotic use (p > 0.05). Macrolides accounted for 68% of antibiotics. 22 (14%) of all patients received a chest X-ray and 72 (45%) received an inhaler. Of those who had negative chest X-rays, 76% received an antibiotic.
CONCLUSION: In our teaching clinic, antibiotics were overutilized, while chest X-rays and inhalers were underutilized for the evaluation and treatment of acute bronchitis. Recently published guidelines certainly will help curb use of antibiotics, but a more intensive intervention including physician and patient education likely is necessary. Because of the accelerating rate of antibiotic resistance among community-acquired pathogens, we owe it to our patients, our students, and society to be more vigilant.

**COMPLEMENTARY AND ALTERNATIVE MEDICINE USE AND SUBSTITUTION FOR CONVENTIONAL THERAPY BY PERSONS WITH HIV.** A. Hsiao[1], M.D. Wong[1], D.E. Kanouse[2], R. Collins[2], H.H. Liu[1], R.M. Andersen[1], A. Gifford[3], A. McCutcheon[3], S.A. Bozzette[3], M.F. Shapiro[1], N.S. Wenger[1]; [1]UCLA Department of Medicine and Public Health, Los Angeles, CA; [2]RAND, Santa Monica, CA; [3]UCSD Department of Medicine, San Diego, CA *(Tracking ID #50818)*

BACKGROUND: HIV-infected individuals commonly use complementary and alternative medicine (CAM). However, CAM may interact with conventional therapy and some patients may use CAM as a substitute for conventional therapy. We evaluated the prevalence and predictors of any CAM use and CAM use as a substitute for conventional therapy in a representative sample of patients with HIV.
METHODS: Using data from the HIV Cost and Services Utilization Study, a national probability sample of 2864 adults receiving HIV care in the U.S., we examined data on CAM use of 2466 individuals (representing 219,677 persons) who answered the first follow-up

survey. Patients were asked whether or not they used any type of CAM, and whether or not they used it as a substitute for conventional HIV treatment. We used nested logistic regression to identify the independent predictors of any CAM use and CAM use as a substitute.
RESULTS: Fifty-four percent of patients used at least one CAM modality. Half of CAM users had not discussed CAM use with their providers. In the multivariate model, more education, patients with a greater desire for involvement in medical decision making, and patients who believed that their provider approved of CAM use were more likely to use CAM. Patient's perception of the value of antiretroviral agents was not related to CAM use. Seven percent of CAM users substituted CAM for conventional HIV therapy. After controlling for demographics, CD4 count nadir, stage of HIV disease, and health-related quality of life, individuals who used CAM as a substitute are more likely to perceive that their provider disapproved of their CAM use (OR 3.1; 95% CI, 1.4, 6.8) and to have a negative attitude toward the value of antiretroviral medications (OR 15; 95% CI, 6, 37). After adjusting for these health beliefs and other demographic and health characteristics, Blacks (OR 3.0; 95% CI, 1.6, 5.7) and persons without a college education (OR 3.9, 95% CI 1.1, 14.6) remained more likely to use CAM as a substitute.
CONCLUSION: HIV-infected patients commonly use CAM but often have not discussed it with their provider, making it unlikely that potential drug interactions have been assessed. Use of CAM as a substitute for conventional HIV therapy may play a role in the lower levels of antiretroviral use seen among Blacks and the least educated. Optimal blending of conventional and CAM treatment for HIV disease requires better communication between patients and providers about CAM. Openness among providers toward CAM may reduce CAM substitution for effective HIV therapy.

**PHYSICIANS' RECOMMENDATIONS REGARDING WEIGHT LOSS IN PUBLIC HOSPITAL PRIMARY CARE CLINICS.** J. Huang[1], E. Marin[1], S. Brock[1], H. Yu[1], D. Carden[1], C. Arnold[1], T. Davis[1], D. Banks[1]; [1]Louisiana State University Medical Center at Shreveport, Shreveport, LA *(Tracking ID #52170)*

BACKGROUND: Obese patients are more likely to attempt weight loss when advised to do so by their physicians, yet national data indicate that both counseling rates and content are inadequate. The purpose of this study was to determine 1) the frequency and content of weight loss recommendations by internal medicine residents; 2) the influence of physicians' recommendations on primary care patients' understanding of the relationship between weight and health, and their readiness for weight loss.
METHODS: A convenience sample of 130 outpatients, 18 years of age or older with a body mass index (BMI) of 25 or above, were enrolled. Structured patient exit interviews and literacy tests were conducted in two primary care clinics in our university-based public hospital where more than 80% of patients are overweight or obese. Chi-square and logistic regression were used for statistical analyses.
RESULTS: Sixty-three percent of study patients were female, 66% were African-American, and 70% were unemployed. The mean age was 53.2 with a range of 18 – 82. The mean literacy level was 7 – 8th grade, and 27% of patients were reading below a 7th grade level. The mean BMI was 38.2 with a range of 26 – 63. 98% of patients had one or more obesity-related diseases. Seventy-eight percent of patients reported being advised to lose weight by a resident physician. However, only 6% of patients recalled the recommended weight loss strategy of both diet and exercise. The residents tended to advise younger ($p < 0.002$) and heavier ($p = 0.02$) patients to lose weight. Patients' understanding of health benefits from weight loss ($p < 0.02$) and previous attempts to lose weight ($p < 0.01$) were significantly greater if physicians had told them to lose weight. These patients were also more likely to be contemplating or engaging in weight loss activities ($p < 0.001$). Even after adjusting for age, sex, race, literacy level, and BMI, patients' understanding of the relationship between their weight and health ($p < 0.001$, OR = 6.2), their desire for weight loss ($p < 0.01$, OR = 9.2), and their current weight loss activities ($p < 0.002$, OR = 9.4) were significantly greater if physicians had advised them to lose weight.
CONCLUSION: Physicians' advice to lose weight has a significant influence on patients' understanding of, preparation for, and self-reported engagement in weight loss activities. However, weight loss counseling is inadequate and often does not include the recommended strategy of both diet and exercise in this public hospital where obesity and its associated diseases are so prevalent. An educational intervention is needed to improve residents' knowledge and skills for weight loss counseling.

**PARTNERING FOR OPTIMAL PATIENT CARE: PROSPECTIVE, RANDOMIZED, CONTROLLED TRIAL OF THE INPATIENT EXPERIENCE OF A HOSPITALIST-ORTHOPEDIC TEAM.** J.M. Huddleston[1], D. Larson[1], D. Vanness[1], K. Hall Long[1], M. Plevak[1], D. Ilstrup[1], J.M. Naessens[1], R. Trousdale[1], M. Cabanela[1], R. Wachter[2]; [1]Mayo Clinic, Rochester, MN; [2]UCSF, San Francisco, CA *(Tracking ID #51874)*

BACKGROUND: **Context:** Inpatient medical care is increasingly being delivered by hospitalists. Studies to date have focused on the effects of this model on hospitalized medical patients. The effects on surgical populations are unknown.
**Objective:** To determine the impact of a multidisciplinary, hospitalist-orthopedic team (HOT) on patients at increased risk for postoperative medical complications following elective total hip (THA) or knee arthroplasty (TKA).
METHODS: **Design and Setting:** Prospective, randomized, controlled trial conducted in a community-based academic medical center.
**Participants:** 516 orthopedic surgical patients who were considered to be at increased risk for postoperative adverse medical events following elective THA or TKA.
**Main Outcome Measures:** Length of hospital stay (LOS) and inpatient postoperative medical complications.
RESULTS: 1773 patients underwent THA or TKA between July 1, 2000 and June 30, 2001. 578 patients met inclusion criteria, of which 64 declined participation. 516 patients were randomized to either the HOT or standard model of management by orthopedic-resident team. Two did not receive allocated intervention secondary to surgical delay and 46 were excluded from analysis (initial run-in period, staged procedure for prosthetic joint infection and the one death was excluded from the LOS analysis) leaving 232 and 237 patients in respective analyses. Complications were classified as minor, intermediate and severe based on objective clinical criteria. More patients in the HOT arm were discharged from the hospital without complications [143 (61.6%) vs. 118 (49.5%); p = 0.0098] and HOT patients had significantly fewer minor complications (electrolyte imbalance, postoperative fever, urinary tract infection)[78 (33.6%) vs 116 (48.9%); p = 0.0008]. There was no significant difference in intermediate (pneumonia, delirium, CHF, GI bleed, ileus) or major complications (death, pulmonary embolus, respiratory failure, myocardial infarction). The difference in LOS was not significant (p = 0.06). However when we eliminated days of delayed discharge secondary to lack of community nursing home beds, patients were deemed "ready for discharge" sooner with the HOT model of care. This resulted in a shorter modified LOS for patients in the HOT arm (5.1 vs. 5.6 days; $p < 0.001$).
CONCLUSION: The HOT model of perioperative care is effective in reducing minor and overall medical complications in patients at risk for postoperative complications. The model was associated with a trend toward shorter LOS, which became significant after accounting for delays attributable to the inavailability of nursing home beds. Additional research should assess the impact of collaborative hospitalist-surgeon models on inpatient quality and resource use in other settings.

**ANTIBIOTIC PRESCRIPTION IN STRATEGIES USING A CLINICAL SCORE AND A RAPID STREPTOCOCCAL TEST FOR ACUTE PHARYNGITIS.** J.P. Humair[1], S. Antonini Revaz[1], H. Stalder[1]; [1]Department of Community Medicine, Geneva University Hospital, Geneva, Switzerland *(Tracking ID #51928)*

BACKGROUND: There is no optimal approach for the management of acute pharyngitis. Based on expert opinion, a clinical guideline (Ann Intern Med 2001;134:509 – 517) recommends 3 strategies using a clinical score and a rapid streptococcal antigen test (RSAT). This study uses clinical data for a decision analysis comparing antibiotic (AB) prescription in these 3 strategies.
METHODS: We included 372 patients aged ≥16 consulting a walk-in clinic for sore throat with at least 2 of 4 clinical criteria: fever >38°C, tonsillar exsudate, tender cervical adenopathy, no cough nor rhinitis. Physicians performed a clinical exam, a RSAT (Strep A OBC II) and a throat culture as a "gold standard". Using results of these procedures we performed a decision analysis to determine AB prescription for 3 strategies based on the clinical score and: (A) systematic RSAT and AB for positive test results; (B) selective RSAT for patients with 2 – 3 criteria and AB for those with a positive test or 4 criteria; (C) empirical AB therapy for patients with 3 – 4 criteria.
RESULTS: The prevalence of Group A streptococcal pharyngitis (GASP) was 37.6% and increased with the clinical score (23.6%, 41%, 60.3% for respectively 2, 3 and 4 criteria). The RSAT achieved high sensitivity (91.4%) and specificity (95.3%). The table below shows AB prescription rates resulting from the 3 tested strategies.
CONCLUSION: Management of acute pharyngitis with a clinical score and a RSAT for patients with 2 – 4 criteria is the most appropriate strategy; it optimizes AB prescription and misses very few cases of GASP, of which complications are rare. Empirical AB therapy for patients with 3 – 4 criteria is not recommended as it leads to high AB over-use and under-use.

**Antibiotic Prescription in 3 Management Strategies of Acute Pharyngitis**

| Strategy | A | B | C |
|---|---|---|---|
| AB use (%) | 37.4 | 44.9 | 60.2 |
| Appropriate AB use for GASP (%) | 34.4 | 34.9 | 28.2 |
| AB over-use (%) | 3 | 9.9 | 32 |
| AB under-use (%) | 3.2 | 2.7 | 9.4 |
| Appropriate treatment (%) | 93.8 | 87.4 | 58.6 |

**TRUST AND SATISFACTION IN A PRIMARY CARE CLINIC** J.L. Jackson[1]; [1]Uniformed Services University of the Health Sciences, Bethesda, MD *(Tracking ID #50811)*

BACKGROUND: Both trust and satisfaction are important emerging issues in primary care. Despite considerable research, little is known about what factors influence patients decisions regarding trust and satisfaction, with most studies explaining less than 20% of the variance. We sought to explore the possibility that trust and satisfaction may be identical constructs from the patient's perspective.
METHODS: 250 patients presenting to a primary care walk-in clinic completed surveys. Previsit surveys assessed functional status (MOS SF6), symptom characteristics, mental disorders (PRIME-MD), illness worry, expectations, and stress. Postvisit patient surveys assessed satisfaction (RAND-9 item), unmet expectations, residual serious illness worry and trust. Clinician surveys assessed encounter difficulty (DDPRQ). Because of the high degree of skew, satisfaction and trust were dichotomized as fully satisfied and fully trusting. Logistic regression models were fitted and exploratory factor analysis with varimax rotation was used to assess strength of construct correlations. Amount of variance explained was estimated by summing the 9 satisfaction domain scores and assessing with multivariate linear regression.
RESULTS: Study participants averaged 50.2 years, were 43% African American, 43% white and 55% female and were seen by 21 participating clinicians. 60% of the patients were fully satisfied with the care they had received and 69% fully trusted the clinician they saw. Independent predictors of satisfaction and trust are given in the Table. Adding trust increases the amount of satisfaction variance explained from 22% to 51%. Factor analysis of the myriad patient and clinician questions produced 5 clusters: 1) Somatic Complaints, 2) Satisfaction/Trust, 3) Physician rated encounter difficulty, 4) Functional Status/Impact of illness and 5) Emotional Health. While satisfaction and trust loaded similarly in factor analysis, trust's uniqueness was 0.45, suggesting considerable unexplained variation.

CONCLUSION: We conclude that while trust and satisfaction are similar constructs with considerable overalap, there are unique aspects of each which merit further study.

**Correlates of Satisfaction and Trust**

| Fully Satisfied with Doctor | RR (95% CI) | Fully Trust Doctor | RR (95% CI) |
|---|---|---|---|
| No Unmet Expectations | 1.9 (1.1–3.4) | Fully Satisfied | 10.8 (5.3–22) |
| Age >65 | 2.0 (1.1–4.2) | Given Diagnosis | 2.5 (1.5–4) |
| Fully Trust Doctor | 9.5 (4.8–19) | African-American | 0.5 (0.2–0.9) |
| Female Doctor | 1.8 (1.0–3.0) | >HS Education | 0.6 (0.4–1.0) |

**A SYMPTOM-TRIGGERED STRATEGY FOR ALCOHOL WITHDRAWALSYNDROME MANGEMENT RESULTED IN LESS USE OF LONG-ACTING BENZODIZEPINES. T.M. JAEGER MD, R.H. LOHR MD; MAYO FOUNDATION, ROCHESTER, MN.** T.M. Jaeger[1], R.H. Lohr[1]; [1]Mayo Clinic, Rochester, MN *(Tracking ID #52316)*

BACKGROUND: We recently reported our experience with implementation of symptom-triggered therapy (STT) for Alcohol Withdrawal Syndrome (AWS) on general medicine services in a tertiary hospital. Using historical controls prior to implementation, we observed a decrease in incidence of delirium tremens (DTs) after implementation of STT. The mechanism(s) responsible for an improvement in this clinical outcome are not clear. We hypothesized that increased utilization of long-acting benzodiazepines (BZD) may have been responsible for a decrease in DTs.
METHODS: Pre- and post-implementation cohorts were defined as definite AWS patients managed two years before and after (respectively) implementation of STT in January 1997. The protocol listed chlordiazepoxide or lorazepam as BZD options. Choice of BZD remained with the prescribing MD. All clinical and pharmacologic data was obtained by retrospective chart review. Long-acting BZD (chlordiazepoxide, clonazepam, diazepam) dose was defined as an equivalent to oral lorazepam (using accepted conversion ratios) received during the duration of treatment. The association of treatment group and long-acting BZD equivalents was assessed with mixed-models analysis of covariance to adjust for multiple admissions for the same patient. We also adjusted for Charlson Comorbidity Index, age, sex, prior AWS, prior withdrawal seizures, and prior DTs.
RESULTS: The average (SD) long-acting BZD dose received (expressed as oral lorazepam equivalents) was 18.2 (18.0) in the pre-implementation cohort and 11.1 (19.8) in the post-implementation cohort. This difference was significant after adjustment ($p = 0.026$). Long-acting BZD were received by 58 (61%) patients in the pre-implementation cohort and 45 (34.1%) patients in the post-implementation cohort; after adjustment for covariates, this difference remained significant ($p < 0.001$).
CONCLUSION: Patients treated in this study with STT were less likely to receive long-acting BZD and received lower doses of long-acting BZD than those managed with usual care. It is unlikely that this difference in BZD therapy is responsible for our observed difference in DTs.

**PERCEPTIONS AND SATISFACTION WITH A COMPUTERIZED MEDICAL RECORD SYSTEM: A SURVEY OF OUTPATIENT INTERNAL MEDICINE PATIENTS.** R. So[1], A.K. Jaffer[1], S. Burke[1]; [1]Cleveland Clinic Foundation, Cleveland, OH *(Tracking ID #52419)*

BACKGROUND: The use of computerized medical record (CMR) systems by physicians in office practice is rapidly increasing in this country. However, little is known about how the CMR is perceived by patients. A survey was developed to assess patients' perceptions of a CMR system with regards to overall satisfaction, the physician-patient relationship, the confidentiality and security of the medical record, and the length of office visit.
METHODS: Patients seen in an urban, academic general internal medicine clinic that utilized a CMR system, were given an anonymous voluntary written questionnaire. The 23 item survey collected information on patient demographics, provider type, visit type, frequency of computer use, and patient perception of the CMR in the four domains outlined above. A 5-point Likert scale was used to standardize patient responses. Study-specific questions were examined on their reliability, validity and internal consistency.
RESULTS: 213 out of 220 patients agreed to participate with a response rate of 96.8%. Patient demographics revealed the mean age of the respondents was 55.7. Staff physicians were more likely to see female patients than residents ($p = 0.003$). Racial distribution was also different between resident and staff physicians ($p = 0.004$). All other demographic information was comparable between provider type. Majority of patients had positive responses in each of the domains assessed. When questioned specifically regarding the CMR's impact on overall care, 78% of patients (n = 166) responded positively, Physician-patient relationship was perceived as improved by 80% (n = 170), Confidentiality was perceived as improved by only 29% (n = 61). When asked if the length of visit was increased because of the CMR, 75% (n=159) disagreed. There was no significant difference of patient opinion based on provider type. Furthermore, familiarity with computers did not alter patient perceptions of the CMR.
CONCLUSION: This study provides important evidence regarding patient perceptions and satisfaction with the use of the CMR. The majority of patients had positive perceptions in the four domains assessed by the survey. Overall satisfaction with provider visits was not decreased with the use of a CMR system. These results are consistent with results from previous small studies. In fact, our study reveals 78% felt they received better overall care when their physician used a CMR regardless of whether they saw a resident or a staff physician. Also the patient-physician relationship was not diminished but rather 80% felt the relationship improved with CMR use. These results are important as increasing numbers of physicians and medical centers begin using the CMR systems. This data should alleviate provider concerns and ease the transition to adopting CMR systems.

**LACK OF AGREEMENT BETWEEN COMPUTERIZED MEDICATION PROFILES AND STRUCTURED MEDICATION HISTORIES.** P.J. Kaboli[1], A.B. Hoth[2], B. Carter[3], E.A. Chrischilles[3], R.I. Shorr[4], P.S. Wagner[2], G.E. Rosenthal[1]; [1]University of Iowa and Iowa City VAMC, Iowa City, IA; [2]Iowa City VAMC, Iowa City, IA; [3]University of Iowa, Iowa City, IA; [4]University of Tennessee, Memphis, TN *(Tracking ID #52279)*

BACKGROUND: Computerized medication profiles are increasingly being used in clinical practice and in initiatives to monitor and improve patient safety. The purpose of this study is to evaluate the agreement between information in a widely used computerized medication profile and information obtained through a structured medication history.
METHODS: The study population included 127 randomly selected and cognitively intact patients 65 years and older who were enrolled in a VA primary care clinic and who were prescribed five or more regularly scheduled medications in 2001. A four-step, structured patient interview elicited information from patients and/or spouses about all current prescription, over-the-counter (OTC), vitamin, and herbal products, as well as drug allergies and prior adverse drug reactions (ADRs). Interviews also compared patients' medication bottles to medications listed in the computerized medical record. Interview information was then compared to computerized medication profiles to determine overall agreement.
RESULTS: Mean age of the 127 study patients was 74 years (range 65–87); 98% were male. Based on the structured interview, patients were taking a mean of 12.6 regularly scheduled medications (range 4–25; means of 8.4 prescription, 2.9 OTC, 1.0 vitamin and 0.2 herbal products). Patients reported a mean of 0.5 medication allergies and 0.6 ADRs. There were only 5 patients (4%) for whom the computerized profile and structured medication history agreed perfectly for all medications. 83% of patients reported taking one or more medications not appearing on the electronic record (mean 2.8; range 1–12). 64% had one or more medications listed on the electronic record that they were no longer taking (mean 2.3; range 1–9). Differences also existed between the computerized allergy and ADR record and the structured interview. One or more allergies not listed on the computerized record were reported by 9% (N = 11) of patients, while 28% (N = 35) reported one or more ADRs not listed on the computerized record. Only 2 patients (1.0%) had an allergy or ADR listed in the computer record that the patient denied.
CONCLUSION: Medications listed in one widely used computerized medication profile were often different from medications that patients actually reported taking. While computerized medication profiles offer tremendous opportunities for improving the quality of prescribing, these results highlights the need to obtain careful medication histories during patient care visits and to develop protocols for regularly updating computerized medication profiles.

**THE IMPACT OF A NEW ACADEMIC HOSPITALIST SERVICE ON LENGTH OF STAY AND CHARGES.** P.J. Kaboli[1], M.J. Barnett[1], S.R. Wilson[1], G.E. Rosenthal[1]; [1]Iowa City VAMC and University of Iowa, Iowa City, IA *(Tracking ID #52378)*

BACKGROUND: Preliminary studies suggest that inpatient care by hospitalists (i.e., physicians who focus their clinical effort on inpatient general medicine services) is associated with lower resource utilization, as measured by length of stay and costs. However, such findings need to be replicated in other hospitals. The goal of the current study was to compare outcomes of patients receiving care on a new academic hospitalist service during the first year of its implementation.
METHODS: The study sample included all 1,887 patients admitted to the general medicine service of a large Midwest academic medical center between July 2000 and June 2001. Four general medicine "teams," consisting of an attending physician, a senior resident, an intern, and two medical students, admitted patients in a quasi-randomized fashion every fourth day. One team was staffed by three hospitalist physicians (HPs); the other three teams were staffed by 34 non-hospitalist physicians (non-HPs). All study data were obtained from computerized hospital databases. Outcomes included hospital length of stay (LOS), hospital charges, 30-day re-admission rates, and in-hospital mortality. To adjust for potential differences in case-mix between HP and non-HP services, linear or logistic regression analyses were used to adjust for age, gender, race, type of health insurance, admission month, and principal diagnosis. In these analyses, length of stay and charge data were log-transformed to account for skewing.
RESULTS: The 498 HP patients and the 1,389 non-HP patients were similar ($p > .1$) in mean age (55 vs. 55), gender (53% vs. 51% male), and race (85% vs. 88% white). Mean LOS was 0.8 days shorter in HP than in non-HP patients (6.3 vs. 7.1 days; $p = .01$). In comparisons of HP patients to patients on the 3 individual non-HP services, mean LOS on the HP service was 0.5, 0.9, and 1.2 days shorter. Mean hospital charges were $850 less in HP patients ($10,910 vs. $11,760; $p = .30$), although the difference was not significant. In-hospital mortality was similar ($p > .1$) in HP and non-HP patients (2.4% vs. 2.4%) and there was no difference in 30-day re-admission rates (7.6% vs. 8.9%). In adjusted analyses, LOS was 14% shorter (95% CI, 6% to 23%; $p = .001$) in HP patients ($P = .01$), while charges were 10% lower (95% CI, 1% to 21%; $p = .02$) in HP patients.
CONCLUSION: During the first year of an academic hospitalist program, patients managed by hospitalists had lower LOS and lower hospital charges than patients managed by non-hospitalist physicians. Indicators of quality were similar, as measured by hospital mortality and re-admission rates. These results were attained during the first year of the program and are consistent with the direction and magnitude of findings in earlier studies. Thus, it is likely that hospitalists provide more efficient and equally effective care for general medicine patients.

**COLLATERAL DUTIES: A HUGE UNAPPRECIATED BURDEN FOR CLINICAN-EDUCATORS.** S.D. Kick[1], D.J. Tanaka[1]; [1]University of Colorado Health Sciences Center, Denver, CO *(Tracking ID #51118)*

BACKGROUND: Physicians spend a great deal of time on patient-related activities outside of the examination room. Most often, these activities are not compensated monetarily or through productivity standards such as relative value units (RVU's). The purpose of this study was to utilize a novel method to document physician time spent in a number of these collateral activities.
METHODS: The Titrax (trademark) software was developed as a tool for keeping time of various activities on a palm pilot. Permission for the use of this program for research was granted

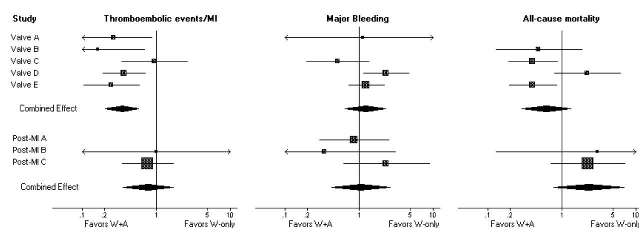
by the developers. The program alows for the creation of different categories. At a touch of the stylus, time is kept for the activity chosen. Several categories were chosen in the areas of patient/colleague communication, charting, and lab/literature review. Clinical faculty in the division of General Internal Medicine were asked to use the palm pilot in one-week increments. The clinicians were given instruction in the use of the program and were asked about acceptability of the program following the week's use. Data are presented as descriptive summaries of the time spent in the various activities. Total time was indexed to the degree of clinical effort.
RESULTS: Five physicians have used the program to date. All found it acceptable with minimal problems. Physicians used the program for one to four weeks. The total time spent in these collateral activities ranged from 1.5 hours to 18.3 hours per week. When indexed to the number of patients seen, and hours actually spent in clinic, the clinicians spent an average of 14 minutes per patient seen, and 34 minutes per hour spent in patient care, specifically on collateral duties occurring outside of the examination room.
CONCLUSION: Clinician-educators spend a substantial amount of time in activities other that face-to-face patient care. Depending on how one defines the number of hours in a work week, clinicans are spending up to 45% of their time in these activities which are neither compensated nor accounted for in traditional means of measuring physician productivity.

**COMPLIANCE WITH PRIMARY PREVENTIVE CARE GUIDELINES AMONG HEALTHCARE WORKERS.** S. Krishnamurthy[1], S. Hegde[1], G. Poomkudy[1], P. Mehta[1]; [1]New York Methodist Hospital, Brooklyn, NY *(Tracking ID #51727)*

BACKGROUND: The American College of Physicians has developed screening guidelines to enable physicians to identify disease processes early and standardize the quality of care. In our study, we focused on the compliance of healthcare workers with the established primary care guidelines to see if awareness of health issues and accessibility of care affected compliance in the population.
METHODS: A 21-item questionnaire dealing with demographics, annual physical exams and screening guidelines was distributed to healthcare workers (doctors, nurses and ancillary staff) at a community hospital. Responses were obtained from 102 women and 104 men (>95% response rate). Non-compliance was defined as failure to have an annual physical exam.
RESULTS: Of the respondents, 121 people (59%) were compliant and 85 (41%) were non-compliant. Physicians were the least compliant of the healthcare workers (p = 0.0003. Compliance appeared to be higher in women than men (p = 0.015) and in African-Americans than in other ethnic groups (p = 0.05). However, further analysis showed that these findings were entirely attributable to the composition of the professional sub-groups. Healthcare workers who were compliant with their physical exams were also compliant with other guidelines such as dental visits (p = 0.0008) and Pap smears (p = 0.003). However, 19/25 respondents (76%) greater than age 50 years never had a flexible sigmoidoscopy. In contrast, only 9/41 women (22%) greater than age 40 years failed to have a mammogram. The most common reasons given for non-compliance were: 1) people felt healthy (29/62) and 2) work hours precluded their medical appointments (15/62).
CONCLUSION: Our data indicate that physicians are less compliant with preventive care than other healthcare workers. Individuals over the age of 50 were more compliant with the annual physical exam. However, they were more complaint with mammograms than with invasive procedures such as flexible sigmoidoscopy. The presumption is that working in the healthcare field enables a person to recognize the importance of screening guidelines as well as having easier access to healthcare facilities. Nevertheless, many healthcare workers, especially physicians, were found to be non-compliant with preventive. This particular finding deserves further attention.

**SHOULD ASPIRIN BE CONTINUED WHEN PATIENTS BEGIN WARFARIN?** R.J. Larson[1], E.S. Fisher[1]; [1]Dartmouth College, White River Junction, VT *(Tracking ID #51820)*

BACKGROUND: Aspirin is known to be effective for the prevention of acute myocardial infarction. In patients who develop an indication for warfarin however, the risk:benefit ratio for continuing aspirin is unclear.
METHODS: A Cochrane Optimized MEDLINE Search Strategy was used to identify RCTs of warfarin and aspirin published between 1966 and 2002. We included only randomized trials containing both warfarin plus aspirin (W+A) and warfarin only (W-only) arms, with all anticoagulation targeted to an INR goal ≥2.0. Studies had to report at least one of the outcomes of interest (MI/thromboembolic events, bleeding rates and/or all-cause mortality) and at least 3 months of follow-up. RR's for W+A vs W-only were calculated for each outcome and overall effects were summarized by warfarin indication.
RESULTS: 589 potential articles were identified by MEDLINE search and reference review. Only 8 trials met all inclusion criteria — 5 in patients with prosthetic heart valves and 3 in post-MI settings. No trials of atrial fibrillation, LV thrombus or DVT/PE qualified for inclusion. Thromboembolic event rates were markedly decreased with W+A in the valve trials (RR 0.35, 95%CI 0.21 – 0.58), and MI rates were lower or unchanged with W+A in both post-MI trials reporting this end point (RR 0.79, 95%CI 0.36 – 1.71). Major bleeding was generally higher in W+A groups (RR 1.23, 95%CI 0.65 – 2.34 for valve trials; RR 1.07, 95%CI 0.43 – 2.65 for post-MI trials). The risk of death was decreased with W+A in 3 of 4 valve studies (RR 0.62, 95%CI 0.29 – 1.34) while both post-MI trials that reported this outcome showed an increase in mortality in the W+A groups (RR 2.33, 95%CI 0.78 – 6.99).




CONCLUSION: Limited data exists to direct decision making around concomitant warfarin and aspirin use. Available evidence suggests that W+A may be beneficial following valve replacement, but perhaps harmful in the setting of acute MI. Further studies are needed to clarify which patients should continue aspirin when anticoagulation is begun.

**PERCUTANEOUS FEEDING TUBE PLACEMENT IN NORTH CAROLINA HOSPITALS FROM 1989 TO 2000.** C.L. Lewis[1], C.E. Cox[1], T.S. Carey[2], A. Howard[2], T. Pendergraft[2], J.M. Garrett[1]; [1]University of North Carolina at Chapel Hill, Chapel Hill, NC; [2]Sheps Center for Health Services Research, Chapel Hill, NC *(Tracking ID #50765)*

BACKGROUND: Although placement of non-surgical feeding tubes has increased over the last decade, this increase has not been well characterized. We describe the use of percutaneous feeding tubes over an 11 year period in North Carolina hospitals using the North Carolina Hospital Discharge Database for years 1989 – 94 and 1996 – 2000.
METHODS: We identified new feeding tube placements using ICD-9 procedure codes and calculated the rates of placement using census estimates for population stratified by age (18 – 64, 65 – 74,75+) restricting our analysis to North Carolina residents and rate per hospital admission for these age groups. We also calculated the mortality rate of those who had a feeding tube placed during the admission.
RESULTS: The rate of feeding tube placement per 100,000 patients for each age group increased through the 11 year period. For patients ages 65 and younger, 30 feeding tubes were placed in 1989 and increased to 43 by 2000. For residents ages 65 – 74 the rate increased from 189 to 302, and for those over age 75 the increase was 496 in 1989 to 789 in 2000. This reflects a 30%, 37%, and 37% increase respectively from 1989 to 2000. Similarly, the rate of feeding tube placement per 1000 admissions increased from 3 to 5 for those less than 65, from 8 to 12 for those ages 65 – 74, and from 15 to 20 for those age 75 and over. The proportion of those with a feeding tube who died during the admission in which the tube was placed remained relatively stable from 1989 to 2000 for those who were less than 65 years old (7% to 8%) and those ages 65 – 74 (12% to 13%). However, the proportion over age 75 who died in the hospital after the feeding tube was placed declined from 18% to 12%. The number discharged home decreased from 1989 to 2000 (77% to 40% for those less than 64, 60% to 27% for those 64 – 75, and 38% to 16% for those over 75 year of age) while the number sent to nursing homes or other facilities increased (11% to 35%, 19% to 46%, and 37% to 61%).
CONCLUSION: We found that the rate of percutaneous feeding tube placement increased in the three age groups examined in North Carolina Hospitals from 1989 to 2000, but the rate of increase was greater in those over age 64. Although inpatient hospital mortality remained stable or declined, the morbitity as indicated by the precentage discharged to nursing homes has increased.

**INFORMING SURROGATES ABOUT GASTROSTOMY FEEDING TUBE PLACEMENT.** C.L. Lewis[1], C.E. Cox[1], T.S. Carey[2], J.M. Garrett[1], A. Jackman[2], N. Phifer[3], L.C. Hanson[1], S. Bernard[4], J. Darter[2]; [1]University of North Carolina, Chapel Hill, NC; [2]Sheps Center for Health Services Research, Chapel Hill, NC; [3]Moses Cone Hospital, Greensboro, NC; [4]RTI, Chapel Hill, NC *(Tracking ID #50880)*

BACKGROUND: Decisions about percutaneous feeding tubes require that physicians inform patients and/or surrogates of the potential risks and benefits, and weigh these to decide if placement is desirable. Some have questioned the adequacey of informed consent for feeding tube placement. We wished to determine if surrogates felt they had adequate information about the feeding tube placement, and determine if they felt the decision was shared with the physician.
METHODS: We identified patients older than 21 years of age who had an initial percutaneous feeding tube placed by reviewing the daily procedural logs of interventional radiology and gastroenterology suites at a major teaching and a community hospital. We conducted the interviews within 1 month after placement either over the telephone or in person. We interviewed surrogates because few patients were able to complete interviews due to congnitive impairment or medical illness.
RESULTS: We interviewed 192 surrogates of patients who had a new percutaneous feeding tube placed. Most had been told about the benefits (83%) and risks (70%) of feeding tube placement. Respondents reported that they had discussed with a physician what life would be like with the feeding tube (66%) and without (73%). Surrogates reported that they were asked if they understood the information (84%) and what they thought about the feeding tube placement (59%). About half (45%) reported that they wanted more information about how the feeding tube would affect the recipients' life, and 43% wanted to know if the feeding tube would prolong life. About a quarter (22%) felt that the physician had made the decision alone, and 53% felt that the surrogate and/or recipient had made the decision without the physician sharing in the decision. Respondents reported that 18% of the patients participated in the decision to have a feeding tube placed.
CONCLUSION: Although most surrogates felt informed about the aspects of feeding tube placement we examined, the opportunity to increase information sharing for some aspects is apparent. A significant minority wanted more information about life expectancy and the effect of the feeding tube on the recipient's life. A majority felt that they had made the decision without physician participation in the decision making process.

**DOES OBESITY AFFECT FUNCTIONAL OUTCOMES AFTER TOTAL JOINT REPLACEMENT?** P.A. Moore[1], R.M. Lubitz[2], M.A. Smith[1], E.S. Moore[1]; [1]St. Vincent Hospital, Indianapolis, IN; [2]St. Vincent Hospital; Regenstrief Institute for Health Care, Indianapolis, IN *(Tracking ID #52343)*

BACKGROUND: An estimated 97 million American adults are overweight or obese. Obesity (BMI >30 kg/m2) is a significant risk factor for developing degenerative joint disease (DJD) in weight-bearing joints. Total joint replacement (TJR) of the hip and knee for DJD improves mobility and reduces pain, but effectiveness studies in obese patients primarily come from orthopedic specialty centers. The purpose of this prospective study was to assess the impact of obesity on patient-specific functional outcomes following TJR in a community setting.

METHODS: Beginning in 1998, we surveyed 883 consecutive patients (88% of eligible) undergoing elective TJR surgery at two suburban Indianapolis hospitals. Surveys were administered prior to surgery, and again at 6 and 24 months post-TJR. The survey included reliable and valid measures of sociodemographic factors, co-morbid conditions, substance abuse, social support (MOS-20), generic physical health and emotional function (SF-12 PCS and MCS) and lower-extremity joint-specific pain and function (WOMAC). Subjects also reported changes in walking distance, use of pain medication, and satisfaction associated with the procedure.
RESULTS: At two years follow-up, 844 patients (95.5%) patients had complete data for analysis. Mean age of the cohort was 67.3 years (range 25 – 100), 62% were women, and 91% were Caucasian; 45% (n = 381) had a BMI >30 kg/m2. Elective knee replacement was performed on 62% (n = 529) and hip replacement on 38%. At two years, all patients achieved substantial improvements in pain and function. Using linear regression and controlling for type of procedure, gender, socioeconomic status, co-morbidity and social support, obese patients experience less gain in physical function (SF-12 PCS, p = 0.04) and joint-specific function (p = 0.05), but otherwise had similar 2-year improvements in generic emotional function and disease-specific pain as compared to non-obese patients. Obese patients had similar gains in walking distance and reduction in pain medication use, and were equally satisfied with procedure results (p = NS).
CONCLUSION: In this study, obese patients did not see as great a gain in physcial function as non-obese patients, but other outcomes were similar. These results can be used to aid patients in setting appropriate expectations for TJR.

**ANXIETY AND DEPRESSION IN CHRONIC HEART FAILURE PATIENTS: ASSOCIATION WITH MORTALITY?** A. Mattai[1], S. Zickmund[1]; [1]University of Iowa, Iowa City, IA *(Tracking ID #52118)*

BACKGROUND: Congestive heart failure (CHF) affects over 2 million Americans each year and is associated with high rates of morbidity and mortality. Heart failure is linked to psychological abnormalities, including anxiety and depression. Although mental illness may affect the well-being and quality of life (QOL) of heart failure patients, few studies have explored the relationship between heart failure, mortality, and mental illness. The purpose of this study is to 1) examine the prevalence of anxiety and/or depression in patients with CHF; 2) to assess the correlation between anxiety and depression and mortality in CHF patients.
METHODS: Patients selected between October 1998 and May 2001 at the Heart Failure Clinic at a large midwestern teaching hospital completed the Hospital Anxiety and Depression Scale (HAD) and the Sickness-Impact Profile (SIP). Patients were eligible if they were competent, over age 18, and not a prisoner. Age, gender, clinical disease stage (NYHA), scintigraphically determined left-ventricular ejection fraction (LVEF), and serum sodium and serum creatinine concentrations were recorded.
RESULTS: 252 patients (74 female and 178 male) were enrolled (mean age = 58.8 years). The majority suffered from moderate to severe CHF (NYHA = 2.4 with LVEF = 29.7). Serum sodium (137.2 meq/L) and creatinine (1.4 mL/dL) were normal or slightly elevated, respectively. Based on the HAD, 21% of patients had clinically relevant anxiety, while 2% had abnormal scores for depression and 8% demonstrated abnormal scores for both. The emotional problems of anxiety ($r2 = 0.34$, $P < 0.01$) and depression ($r2 = 0.54$, $P < 0.01$) significantly correlated with the overall QOL, as measured by the psychosocial subscore of the SIP. Within a follow-up period of 12 months, 55 (22%) of patients had died. Compared to the survivors, these individuals were older (62.7 years vs. 56.4 years; $P < 0.01$). Neither LVEF (27.0% vs. 30.6%) nor the creatinine (1.5 mg/dL vs. 1.4 mg/dL) nor serum sodium levels (135.5 meq/L vs. 137.6 meq/L) differed between the groups. Anxiety and depression scores did not increase with age. However, the group of patients who died during follow-up had a higher depression score (5.4 vs. 4.4; $P < 0.05$) than the rest of the patients, while anxiety scores did not differ between the groups.
CONCLUSION: Significant emotional problems are common in CHF patients. The relationship between mortality and depression scores further supports the importance of addressing emotional factors with CHF patients. Prospectively designed treatment studies are needed to determine whether more aggressive interventions to alleviate depression and other emotional problems will affect both quality and quantity of life in these patients.

**INCREASING BLOOD PRESSURE CONTROL AMONG MEMBERS OF A MANAGED CARE PLAN USING A PHYSICIAN-FOCUSED INTERVENTION.** S.K. Maue, Phd[1], P. Godley, Pharmd[2]; [1]Applied Health Outcomes and the University of Florida at Gainesville, Tampa, FL; [2]The University of Texas at Austin, College of Pharmacy, Austin, TX *(Tracking ID #52307)*

BACKGROUND: Despite decades of awareness of the importance of controlling blood pressure (BP), hypertension remains seriously undermanaged in the United States. According to data from the NHANES III survey, only 27% of hypertension patients have achieved adequate BP control (<140/90 mm Hg). We undertook a unique, comprehensive physician-focused educational program within a large managed care plan in the South Central region of the U.S. to determine if this type of intervention could improve levels of BP control in the managed care setting.
METHODS: The prevalence of hypertension and antihypertensive prescribing patterns within this health plan, which records approximately 1 million patient visits per year, was assessed through pharmacy and medical claims from September 1, 1998 through August 31, 1999, as well as chart reviews of randomly selected patients in March 2000 (Phase I). Areas for improvement were identified following this baseline assessment, and a six-month intervention consisting of physician teleconferences, one-on-one academic detailing, physician-specific reports and distribution of newsletters was conducted from April 1, 2000 to September 30, 2000 (Phase II). Following the intervention, a follow-up assessment (Phase III), again consisting of review of medical and pharmacy claims, was conducted from February 1, 2000 to January 31, 2001. A second patient chart review was conducted in April 2001.
RESULTS: A total of 30,721 patients >18 years of age without end-stage renal disease were identified as being hypertensive from the Phase III data, representing a hypertension prevalence of approximately 17.6%. Five hundred patients were selected for chart review, of which 417 had charts available at the time of data collection. At baseline, 34.0% of patients had blood pressure that was controlled to JNC-VI recommended levels (<140/90 mm Hg for uncomplicated hypertension and <130/85 for diabetic hypertensives). Following the intervention program, this number increased significantly, to 42.0% of patients (P = 0.02). The number of patients taking multiple medications to achieve BP control also increased significantly, from 26.5% to 53.9% (P = 0.01).
CONCLUSION: A physician-focused intervention program can significantly increase BP control and the use of multiple antihypertensive agents in the managed care setting. The increase in multiple medication use and the corresponding increase in BP control argue strongly for the use of combination therapies to achieve BP control in hypertensive patients.

**INCREASING USE OF COMBINATION ANTIHYPERTENSIVE THERAPIES IN A MANAGED CARE PLAN THROUGH A PHYSICIAN-FOCUSED INTERVENTION.** S.K. Maue, Phd[1], P. Godley, Pharmd[2]; [1]Applied Health Outcomes and the University of Florida at Gainesville, Tampa, FL; [2]The University of Texas at Austin, College of Pharmacy, Austin, TX *(Tracking ID #52326)*

BACKGROUND: Trials such as the United Kingdom Prospective Diabetes Study, as well as the JNC-VI guidelines, support using multiple antihypertensive agents to bring patients to goal blood pressures (BP). A number of fixed-dose antihypertensive combinations are available; unfortunately, only a minority of patients who are eligible to receive fixed-dose combination therapies are receiving them. The use of combination agents is especially useful in hypertensive patients with concomitant conditions, who may be taking a large number of medications; and in the managed-care population, where medication costs and compliance are of concern. We assessed the ability of a primary care physician-focused educational program to increase the use of fixed-dose combination therapy prescriptions among a managed care population.
METHODS: The prevalence of hypertension and antihypertensive prescribing patterns within this health plan, which records approximately 1 million patient visits per year, was assessed through pharmacy and medical claims from September 1, 1998 through August 31, 1999, as well as chart reviews of randomly selected patients in March 2000 (Phase I). Areas for improvement were identified following this baseline assessment, and a six-month intervention consisting of physician teleconferences, one-on-one academic detailing, physician-specific reports and distribution of newsletters was conducted from April 1, 2000 to September 30, 2000 (Phase II). Following the intervention, a follow-up assessment (Phase III), again consisting of review of medical and pharmacy claims, was conducted from February 1, 2000 to January 31, 2001. A second patient chart review was conducted in April 2001.
RESULTS: A total of 30,721 patients >18 years of age without end-stage renal disease were identified as being hypertensive from the Phase III data, representing a hypertension prevalence of approximately 17.6%. At baseline, 16.8% of patients who were receiving dual or multiple antihypertensive therapies were receiving separate agents for which combination agents exist. Overall, prescriptions for fixed-dose combination antihypertensives at baseline were low: 1.9% for ACEI/diuretics, 1.4% for BB/diuretics, 0.4% for ARB/diuretics, and 0.4% for CCB/ACEIs. Following the intervention program, substantial increases were seen among each of these groups: 26.3% for ACEI/diuretics, 21.4% for BB/diuretics, 50% for ARB/diuretics, and 100% for CCB/ACEIs.
CONCLUSION: We conclude that a physician-focused intervention program can increase prescribing of fixed-dose combination therapies. The increased use of these therapies may have a significant impact on prescription costs and compliance with therapy.

**METHADONE MAINTENANCE IN PRIMARY CARE.** J.O. Merrill[1], T.R. Jackson[1], B.A. Schulman[1], D.M. Donovan[1], A.J. Saxon[1], K.D. Stark[2]; [1]University of Washington, Seattle, WA; [2]Washington State Division of Alcohol and Substance Abuse, Olympia, WA *(Tracking ID #50603)*

BACKGROUND: Recent policy initiatives aim to expand the role of physicians in the treatment of opiate addiction, including methadone maintenance. We sought to demonstrate the policy feasibility and clinical safety of a primary care-based methadone maintenance program for stabilized patients.
METHODS: A collaborative process of policy and clinical protocol development resulted in requests for exemptions from federal and state opiate addiction treatment regulations that included extended take-home dose privileges. Physicians and pharmacists in a hospital primary care clinic were trained to provide methadone maintenance in affiliation with an existing community opiate treatment program. Methadone maintenance patients with >1 year of clinical stability were offered primary care and methadone maintainance in a primary care clinic with up to one month supplies of take-home methadone. Patients were seen at least monthly and were monitored with at least monthly urine drug screens and occassional unannounced medication call-backs. The Addiction Severity Index (ASI) and SF-36 were administered at entry, 6 and 12 months. Patient and provider satisfaction was assessed at 6 and 12 months, and physician attitudes toward methadone treatment were assessed prior to training and after 6 months.
RESULTS: Federal and state regulatory exemptions were successfully obtained, and the program was cited in federal policy as acceptable for widespread implementation. Forty-nine of 684 patients met stability criteria and 30 agreed to be transferred to the care of ten generalist physicians. Patients had been in methadone maintenance for an average of 12 years (range 2 – 29) and the average methadone dose was 63mg (range 10 – 140). Of the 30 patients, 28 remained in the medical setting for one year and two transferred to other programs. Three patients had opiate-positive urine drug tests during the first year and were managed in the primary care setting with increased monitoring and counseling. Addiction severity scores were low at baseline and slightly lower at follow-up. Self-assessed medical status as measured by the ASI medical composite score improved significantly ($P < .02$). SF-36 scores tended to improve though not significantly. Both patient and physician satisfaction were high, and physician attitudes toward methadone maintenance treatment became more positive ($P < .01$).
CONCLUSION: Methadone maintenance in primary care appears safe and effective at least for a selected minority of stable methadone maintenance patients, and the necessary regulatory exemptions can be obtained. Physicians and pharmacists can be trained to provide methadone maintenance with high levels of patient and provider satisfaction, and physician attitudes toward methadone treatment may become more positive.

**IMPROVING TYPE 2 DIABETES OUTCOMES: HANDHELD COMPUTER-BASED DISEASE MANAGEMENT PROGRAM.** M. Mintz[1], B. Slater[1], H. Burke[1]; [1]George Washington University, Washington, DC *(Tracking ID #52174)*

BACKGROUND: Sixteen million Americans have diabetes. Despite clear evidence that tight glycemic control improves all outcomes, 62% of diabetics fail to meet the American Diabetes Association guidelines. The purpose of this study was to determine whether a handheld computer-based disease management program could assist providers in lowering A1c levels by individualizing treatment information.
METHODS: Five physicians were given handheld computers (iPAQ) with a diabetes disease management program that we developed. The disease management program assisted providers in collecting patient specific information and in individualizing care. The primary outcome was the change in hemoglobin A1c over the study period. A paired t-test was used in the statistical analysis.
RESULTS: A total of 65 diabetic patients with A1c's > 7.0% were seen by the study providers, and of those, 11 patients have had a follow up A1c and are included in this report. The hemoglobin A1c significantly decreased from a mean pre-intervention value of 9.88% (CI = 8.6–11) to a mean post-intervention value 8.49% (CI = 7.3–9.6) over an average of 60 days (P = 0.0004).
CONCLUSION: The handheld-based disease management program was able to individualize treatment and significantly improve A1c levels within a relatively short period of time.

**HIGHLY ACTIVE ANTIRETROVIRAL THERAPY (HAART) OUTCOMES IN A PREDOMINANTLY HISPANIC, URBAN COHORT.** A.R. Montero[1], N.R. Gandhi[1], A.C. Csaki[1], K.F. Brudney[1], J.F. Dobkin[1]; [1]Department of Medicine, Columbia University, New York, NY *(Tracking ID #51654)*

BACKGROUND: Clinical trials have demonstrated that 60%–90% of patients with HIV-1 infection started on HAART achieve viral load (VL) suppression (VL < 400 copies/ml). The efficacy of HAART outside of the clinical trial setting is less well characterized. In 1999 a treatment adherence program (Jumpstart) was instituted in our clinic for patients about to begin HAART. Jumpstart consists of assessment of barriers to adherence, ongoing peer education, and structured medication dispensing. The program addresses any identified barriers in a multidisciplinary fashion with input and feedback from providers. The aim of this study was to evaluate the impact of the Jumpstart program.
METHODS: A retrospective cohort study design using historical controls was employed. The Control Cohort (N = 51) consisted of consecutive, new patients presenting for outpatient care in 1997 (prior to Jumpstart) who were naive to protease inhibitors (PI) and newly started on HAART. The Jumpstart Cohort (N = 43) consisted of consecutive, new patients referred to Jumpstart who were naive to PI and newly started on HAART. Baseline variables included demographics, HIV risk factors, and baseline VL/CD4. Outcome variables included VL/CD4 and clinic visit adherence. Follow-up was 1 year. Cases without VL were classified as missing for this variable and excluded from analysis.
RESULTS: Baseline factors in the Control and Jumpstart Cohort were similar except for ethnicity, HIV risk factor, and CD4 count. The Jumpstart Cohort had more Hispanic patients, fewer patients with a history of intravenous drug abuse (2.3% vs. 21.6%) and a lower baseline mean CD4 count (98 vs. 148) as compared to the Control Cohort. In the Control Cohort VL suppression (VL < 400) was achieved in 33% of patients at 3–6 months and 39% at 6–12 months. In the Jumpstart Cohort VL suppression was achieved in 81% at 3–6 months and 84% at 6–12 months. Bivariate analysis revealed the following factors to be significantly associated with VL suppression: enrollment in Jumpstart, HIV risk factor of heterosexual sex, Hispanic ethnicity, greater adherence to clinic visits, and lower baseline VL. In multivariate logistic regression, enrollment in Jumpstart (RR = 2.84; p = .004) and Hispanic ethnicity (RR = 1.74; p = .025) remained independently associated with viral load suppression at both 0–6 months and 6–12 months after HAART initiation.
CONCLUSION: Patients enrolled in a peer educator-based treatment adherence program achieved markedly improved viral load suppression when compared to historical controls. The major limitation is use of historical controls, raising the possibility of selection bias. A set of concurrent control cases was constructed from consecutive, new patients presenting in Jan.–Feb. 1999 who were started on HAART but not referred to Jumpstart (N = 7). These cases were found to have less advanced disease and greater VL suppression. This argues against selection bias as accounting for the program effect.

**HEALTH ASSESSMENT OF HIV-INFECTED REFUGEES.** A. Moreno[1], S. Crosby[2], C. Labelle[3], M. Sullivan[4], J.H. Samet[2]; [1]Health Law Department, Boston Univ School of Public Health, Boston, MA; [2]Section of General Internal Medicine, Boston University School of Medicine, Boston, MA; [3]Boston Medical Center, Boston, MA; [4]Section of Infectious Diseases, Boston University School of Medicine, Boston, MA *(Tracking ID #51610)*

BACKGROUND: Refugees present with unique problems and clinical challenges about which American physicians may have little experience. In 2000, the United States allowed HIV-infected refugees to enter the country for the first time. We describe a group of HIV-infected refugees that resettled in Boston between 06/00 and 06/01 with the goal of clarifying useful standards for medical care of this special population.
METHODS: A chart review of all HIV infected refugees was conducted with a mean follow-up 9.2 months. The HIV Diagnostic Evaluation Unit and the Boston Center for Refugee Health and Human Rights conducted the initial evaluation of all patients. Physicians with experience in both refugee health and HIV infection provided the medical care for all patients.
RESULTS: We evaluated 20 patients: 8 (40%) females with a mean age (range) of 35 (27–52) years and 33 (24–41) years for men. Patients came from Africa (70%), Asia (20%), Europe (5%) and Latin America (5%). The main reasons for uprooting were ethnic persecution (45%), political persecution (35%), civil war in country of origin (15%), and relative of a victim (5%). Patients had been subjected to beatings (65%), life in clandestinity (65%), life in a refugee camp (65%), threats (55%), and battlefield conditions (40%). Reported past medical histories included malaria (50%), tuberculosis (20%), and hepatitis B (20%). The mean duration (range) between HIV testing and medical care was 0.9 (0–2.1) years. Risk factors for HIV infection included unprotected heterosexual contact (90%), rape during torture (15%), and blood transfusion after trauma (20%). On physical exam, 30% of the patients had scarring from torture and 45% had positive Mantoux skin tests. Initial laboratory results revealed a mean CD4 count and HIV viral load (HVL) of 411 and 42,275, respectively. Last laboratory results revealed a mean CD4 count and HVL of 524 and 7462, respectively. Twenty percent met the CDC AIDS criteria at initial presentation. Screening tests showed antibodies for hepatitis A (85%), B (70%), C (15%), and Toxoplasma (55%). Substance abuse screening revealed a history of current tobacco use (25%), intravenous drug use (5%), and alcohol problems [CAGE ≥ 2] (5%). Common psychiatric diagnoses were post-traumatic stress disorder (35%), depression (40%), adjustment disorder (20%), and anxiety (15%).
CONCLUSION: In HIV-infected refugees, we found a high prevalence of infectious diseases associated with immigrants from underdeveloped countries as part of the standard evaluation for HIV-infected patients. In addition, a health screening and a psychological evaluation with particular attention to depression and PTSD are warranted in this special population.

**DIET AND EXERCISE AMONG ADULTS WITH TYPE 2 DIABETES-FINDINGS FROM THE THIRD NATIONAL HEALTH AND NUTRITION EXAMINATION SURVEY (NHANES III).** K. Nelson[1], G. Reiber[1], E.J. Boyko[1]; [1]VA Puget Sound Health Care System, University of Washington, Seattle, WA *(Tracking ID #50489)*

BACKGROUND: Although diet and exercise are considered important treatment strategies, little is known about actual diet and physical activity patterns of individuals with type 2 diabetes. The objective of this study is to describe diet and exercise practices from a nationally representative sample of U.S. adults with type 2 diabetes.
METHODS: We analyzed data from 1480 adults over the age of 18 with a self-reported diagnosis of type 2 diabetes in the Third National Health and Nutrition Examination Survey (NHANES III). Dietary information included fruit and vegetable consumption from a food frequency questionnaire (FFQ) and the percentage of total calories from fat intake from a 24-hour food recall. Physical activity was based on self report during the month prior to the survey.
RESULTS: Thirty one percent of individuals with type 2 diabetes reported no regular physical activity. Sixty two percent of respondents ate fewer than five servings of fruits and vegetables per day and 69% consumed more than 30% of their daily calories from fat. Mexican Americans consumed a higher number of fruits and vegetables and a lower percentage of total calories from fat. Respondents over the age of 65 years ate a diet lower in fat with a greater number of fruits and vegetables. Lower income, increasing age, and less than a high school education were associated with reporting no regular physical activity.
CONCLUSION: Diet and exercise practices fall below national guidelines for a significant number of adults with type 2 diabetes. Additional measures are needed to encourage regular physical activity and improve dietary habits among individuals with type 2 diabetes in the U.S.

**MUSCULOSKELETAL MEDICINE AND THE PRACTICING INTERNIST.** J.E. O'Rorke[1], J.A. Pugh[2]; [1]University of Texas Health Science Center, San Antonio, TX; [2]South Texas Veterans Health Care System, San Antonio, TX *(Tracking ID #51878)*

BACKGROUND: Ten to 20% of visits to a primary care physician are for a musculoskeletal complaint. As our population ages this percentage will likely increase. Yet, many institutions lack a formal curriculum in primary care orthopedics. Practicing internists report, anecdotally, that their skills to properly examine, diagnose and treat patients with musculoskeletal complaints are woefully deficient. We surveyed general internists, in practice, to determine what musculoskeletal medicine problems they encounter in their practice. In addition, we explored internists' needs and desires for more musculoskeletal medicine training during residency.
METHODS: Surveys were mailed to 2382 general internists in private practice, identified from the AMA database. All internists within 10 years of completing their residency were eligible. Two hundred and seventy-two (11.8%) surveys have been returned to date.
RESULTS: An overwhelming majority (74%) of respondents felt their residency training did not adequately prepare them for what they would encounter in practice. Internists estimated that 20% of their patients had a musculoskeletal complaint. Lower back, neck, hip and knee complaints were the most frequent. Physicians felt most comfortable evaluating and managing low back problems and least comfortable with foot/ankle problems. More than 90% of respondents reported access to a musculoskeletal specialist. Despite this access, general internists felt that it would be helpful in their current practices, to know more about the following: wound care, orthotics, exam, diagnostic and treatment skills. Respondents reported that they learn much of their musculoskeletal medicine from journals primarily and local conferences secondarily. Areas that respondents felt should be covered in more detail during residency include: wound care (70%), orthotics (72%), joint injection (70%), exam skills (78%), diagnosis (79%) and treatment (76%).
CONCLUSION: Musculoskeletal problems are seen frequently by general internists. A majority of general internists feel their residency did not adequately prepare them for the evaluation of these problems. Internal medicine residency curriculum heavily focuses on life-threatening issues, as it should, but this survey supports the need to offer those desiring a generalist career exposure to non-rheumatologic musculoskeletal medicine. For those past residency it also provides a guide for development of continuing medical education.

**UTILITY OF RHU-ERYTHROPOIETIN IN ANEMIA OF CHRONIC ILLNESS.** C.L. Olympia[1], D.M. Portilla[1], M. Levin[1]; [1]Lincoln Medical and Mental Health Center, Bronx, NY *(Tracking ID #50320)*

BACKGROUND: Recombinant human erythropoietin (rhu-erythropoietin) is effective in the treatment of anemia due to chemotherapy and radiation and has proven to be useful in the treatment of anemia of chronic inflammatory diseases. Most of the studies of its utility in the latter group of conditions has been in anemias associated with rheumatoid arthritis and other chronic rheumatoid syndromes. Although frequently used in anemia due to other chronic illness, few reports have examined dosing, effectiveness and indications in that setting.

METHODS: We identified, through retrospective chart review, patients with anemia of chronic disease receiving rhu-erythropoietin in a large municipal hospital in 2001. The effectiveness of rhu-erythropoietin therapy was then analyzed.
RESULTS: Twenty-six patients were treated with rhu-erythropoietin. Sixteen patients had cancer and received chemotherapy, three had mild chronic renal insufficiency, one had sickle cell disease and one had red cell aplasia. Six patients were diagnosed to have anemia of chronic disease based on chronic normochromic and normocytic anemia, presence of chronic medical illness other than chronic inflammatory diseases (4-diabetes mellitus, all-hypertension and cardiovascular disease) and low or low normal serum erythropoietin levels in the absence of renal disease; hemoglobin levels ranged from 8.1 mg/dL to 10.4 mg/dL (median 9.75, mean 9.43 mg/dL). Four patients were treated with 40000 units weekly, one with 30000 units and one with 10000 units. The time to increase hemoglobin level by 1 mg/dl ranged from 2 to 7 weeks, mean 5.4 weeks. Mean increase in hemoglobin at one month was 1.3 g/dl. The target hemoglobin of 12 was reached at 1 to 6 months, mean of 12 weeks. No significant side effects were noted.
CONCLUSION: Rhu-erythropoietin treatment in doses of 30000 to 40000 units weekly is an effective, safe and well tolerated therapy in patients with chronic illness, low to low normal erythropoietin levels and anemia.

**LONG-TERM FOLLOW-UP OF HIV-ASSOCIATED THROMBOCYTOPENIA TREATED WITH HIGHLY ACTIVE ANTI-RETROVIRAL THERAPY.** C. Pan[1], A. Babaki[1], P. Kapoor[1], T. Narendra[1], C. Costas[1]; [1]St. Francis Hospital, Evanston, IL *(Tracking ID #51946)*

BACKGROUND: HIV-associated Thrombocytopenia (HTP) is a common complication of HIV infection. With the development of highly active anti-retroviral therapy (HAART) in the mid-1990s, it has been shown that HAART could increase platelet count in some HIV patients. However, it is not clear whether the effects of HAART on HTP are long-lasting or not. In this study, we investigated the long-term effects of HAART on HTP.
METHODS: A retrospective study was conducted in HIV patients treated with HAART at St. Francis Hospital from 1995 to 2001. A total of 29 patients with thrombocytopenia were found. Patients with conditions that are known to be associated with thrombocytopenia were excluded. After the exclusion, 19 patients were eligible for this study. Viral load, CD4 count, platelet count and HAART regimens were followed up from one year to 6 years. The paired t test was performed for the statistical analysis. In some cases, bone marrow biopsy and viral resistance genotyping were performed.
RESULTS: HAART increased platelet count in 13 patients (out of 19; 68.4%). The increase in platelet count was associated with a decrease in viral load and increased or stable count of CD4 T cells ($p < 0.001$). HAART had the same effectiveness in the patients untreated or previously treated with anti-HIV medications. The increase in platelet count was not related to the types of HAART regimens used. In two patients, bone marrow biopsy was performed, which did not show abnormality in megakaryocytes or in cytogenetic study. During the long-term follow-up (1 to 6 years, median 41 months, mean 42 months), platelet count decreased in only three patients. In two of them, thrombocytopenia was associated with the development of resistant HIV virus. In one patient, switching to another HAART regimen decreased viral load, followed by an increase in CD4 T cell and platelet count.
In 5 of the 6 patients in whom platelet count failed to increase even with HAART, viral replication was not controlled and CD4 T cell count remained low.
CONCLUSION: Initiation of HAART is associated with an increase in platelet count in most untreated and previously treated HIV patients as long as viral replication is controlled. This effect is observed during the long-term follow-up. When HAART fails to control viral replication and to increase CD4 count, thrombocytopenia does not improve.

**PERCEIVED BENEFITS OF PERCUTANEOUS GASTROSTOMY TUBES: DO SURROGATE DECISION-MAKERS CHANGE THEIR OPINIONS OVER TIME?** N. Phifer[1], C. Cox[2], C. Lewis[2], T.S. Carey[3], J.M. Garrett[2], A.M. Jackman[2], L.C. Hanson[2], J. Darter[4]; [1]Moses Cone Memorial Hospital, Greensboro, NC; [2]University of North Carolina at Chapel Hill, Chapel Hill, NC; [3]University of North Carolina at Chapel Hill and the Sheps Center for Health Services Research, Chapel Hill, NC; [4]Sheps Center for Health Services Research and the University of North Carolina, Chapel Hill, Chapel Hill, NC *(Tracking ID #52131)*

BACKGROUND: Percutaneous gastrostomy tubes (PGT) are commonly used to provide nutrition for patients who cannot maintain adequate nutrition otherwise. Despite reductions in procedural complications, the short-term mortality rate for patients receiving PGT remains substantial. Because of physical or mental limitations of the patient, the decision for tube placement is often made by a surrogate. The purpose of this study is to measure surrogate perceptions of expected gastrostomy tube benefit and to assess if these perceptions change over time.
METHODS: We surveyed PGT surrogate decision-makers at a university and a community hospital. A trained research assistant administered a questionnaire at baseline and 3 months. The survey included questions concerning expectations for improved nutrition, decrease in pain and improvement in overall health. Patients had to be over 21 years old, receiving gastrostomy tubes for the first time and speak English. Patients with trauma and malignancies other than head and neck cancer were excluded.
RESULTS: One hundred ninety two surrogates were surveyed at baseline. Of the surrogates, 40% were patients' spouses, 27% daughters, and 10% sons. The mean age for patients was 65 years. Fifty one percent were men, 67% white and 31% African American. The main indications for PGT placement in the study population were CVA, head and neck cancer, and neurodegenerative disease. For surrogates who answered both baseline and 3-month questionnaires, at baseline, 98% agreed with the statement that the patient's nutrition would improve compared to 90% agreement at 3 months. ($p < .01$) Seventy four percent felt that the patient would have less pain at baseline which decreased to 64% at 3 months. ($p = .026$) Finally, 97% initially agreed that the patient's health would improve but at 3 months only 84% agreed with this statement. ($p = .01$) When all respondents were considered, the results for baseline and 3 month surveys did not differ.
CONCLUSION: At the time of gastrostomy tube placement, almost all patient surrogates agreed the feeding tube would provide better nutrition and health for their loved one. Most also felt that pain would be reduced. At 3 months, surrogates' agreement with positive perceptions lessened but remained strong, suggesting overall satisfaction with the decision. Whether the decrement in satisfaction will persist, accelerate or plateau over a longer period of time needs to be explored, especially in view of patients' poor prognosis.

**EFFECTIVE COLLABORATION BETWEEN INTERNISTS AND ORTHOPEDISTS.** R.L. Powers[1], R.D. Layne[1], K.E. Clark[1], M.M. Kolar[1], M.D. Warden[1], J.D. Blaha[1], J.C. France[1], A.J. Yates[1], G. Hobbs[1]; [1]West Virginia University, Morgantown, WV *(Tracking ID #52232)*

BACKGROUND: Orthopedic patients often need medical consultation. However, challenges to optimal medical consultation include recognizing the need, timeliness of the consultation, and the effectiveness of communication between services. A Medicine-Orthopedics Service (MOS) was formed as a collaborative endeavor to improve the efficiency and quality of care provided to orthopedic in-patients.
METHODS: Patients of 3 faculty orthopedists were seen each weekday on rounds by a general internal medicine (GIM) attending along with an orthopedic resident and physician's assistant. The GIM attending reviewed the medical record, saw the patient, wrote a daily note, and made care changes and teaching points with the orthopedic resident. The GIM attending did not bill for services. Instead, reimbursement allotted to peri-operative care was transferred from Orthopedics to Medicine. Before and after the MOS was established, orthopedic residents and nurses were surveyed by mail regarding their opinions of GIM's contribution to the patients' care (Likert scale 1–5); patient satisfaction telephone surveys were done by Gallop (Likert scale 1–4); and data was obtained concerning length of stay, utilization of ancillaries and readmission rates. The MOS GIM attendings kept a record of care changes they initiated.
RESULTS: Repeated measures ANOVA of before and after surveys showed significant improvement in attitudes regarding GIM's contribution to care for residents ($p = .0062$) and nurses ($p = .0291$). Significant improvement was also found in ratings of communication with GIM, accessibility of GIM, and in the quality of medical care provided to patients (residents p = .0065, .0043, and .0008; nurses p = .0384, .0299, and .0249; respectively). No significant change was noted in overall patient satisfaction which was in the average range. Although the case mix index was worse for the period after introduction of the service, no significant changes were found in length of stay, cost, use of ancillaries or readmission rate. Of the 212 patients seen by MOS, 50% had changes initiated by the GIM attending (42% of patients had changes in treatment, 25% in evaluation, and 16% in diagnosis).
CONCLUSION: The creation of a MOS consisting of GIM faculty and orthopedic residents is perceived by orthopedic nurses and residents to improve the care of orthopedic in-patients. GIM faculty initiated changes in 50% of the patients' care, most often in the area of treatment. In spite of worsening case mix index, the introduction of MOS was not associated with significant increase in length of stay or use of ancillaries.

**A CONTROLLED TRIAL OF OUTPATIENT END-OF-LIFE CARE — SYMPTOM MANAGEMENT AND HEALTH CARE UTILIZATION.** M.W. Rabow[1], S.L. Dibble[1], S.Z. Pantilat[1], S.J. Mcphee[1]; [1]University of California, San Francisco, San Francisco, CA *(Tracking ID #51997)*

BACKGROUND: Outpatients with terminal or serious chronic illness may experience significant physical symptoms and require frequent health care visits. In a controlled trial, we evaluated the efficacy of a palliative medicine consultation team to help such patients manage their symptoms and we evaluated patients' use of health care services.
METHODS: Patients in 2 similar but separate modules of a university-based primary care outpatient clinic were assigned to intervention and control arms. In one module, 50 patients with severe CHF, COPD, or cancer received consultations and services from the team (experimentals); in the other module, 40 received usual primary care (controls). Three times during the study year, we administered validated survey instruments to measure patients' pain (Brief Pain Inventory), dyspnea (UCSD Dyspnea Scale), and sleep (Medical Outcomes Study). We reviewed medical record data regarding primary care and specialty clinic visits, emergency department use, hospital admissions, and length of stay. To evaluate the intervention effect, we compared outcome differences between experimental and control groups at post-intervention, controlling for baseline group differences. Data were analyzed using descriptive and ANCOVA statistics.
RESULTS: The patient population (n = 90) was older (mean age 68.6 years), female (64%), low income (71%), and multi-ethnic (53% Caucasian, 18% African American, 10% Latino, 8% Asian, and 11% other). Except for gender, there were no significant differences in sociodemographic, functional status, disease severity, or outcome measures at baseline between the experimental and control groups. At baseline, 84% reported dyspnea. Post-intervention, experimental patients reported that dyspnea interfered less with activities ($F = 7.1$, $p < .02$) and caused fewer limitations ($F = 6.4$, $p < .02$) than controls. Post-intervention, compared to controls, experimental patients reported improved sleep ($F = 4.1$, $p < .05$). At baseline, 84% reported pain, with an average pain score of 4.6 on the 0–10 scale. Post-intervention, there were no significant group differences in the level of pain. Despite the consultation team's recommendations to initiate opioid medications in 12 experimental patients, only 1 of these patients reported taking an opioid by study end. During the intervention, experimental group patients made fewer primary care clinic visits than controls (7.5 vs. 10.6, $p < .04$); there were no significant differences between groups in the other utilization measures.
CONCLUSION: Consultation and services from a palliative medicine team for outpatients with serious, end-stage illness led to improvements in dyspnea and sleep but not pain outcomes. Compared with controls, experimental patients had fewer primary care clinic visits, without an accompanying increase in other health care utilization.

**PERCEPTION OF COMPLICATION RISK AMONG PATIENTS WITH TYPE 2 DIABETES.**
A.R. Robinson[1], L. Klancar[1], H.A. Shull[1], S.L. Brandenburg[1]; [1]University of Colorado Health Sciences Center, Denver, CO *(Tracking ID #51950)*

BACKGROUND: Little is known about how well patients with diabetes mellitus (DM) understand their increased risk of disease-related complications.
METHODS: We surveyed 202 outpatients with type 2 DM, asking them to rate their likelihood of retinopathy, neuropathy, nephropathy, foot problems, infection, myocardial infarction (MI), and stroke as compared to non-diabetics. Respondents were also asked about previous DM education and demographics. Respondents were also asked to rate the benefits of certain behaviors or therapies for people with diabetes, including regular exercise, not smoking, cholesterol lowering, maintaining normal weight and normal blood pressure. Chart reviews assessed the presence of or previous screening for complications, co-morbid disease, and types of therapies.
RESULTS: The following table shows the percentages of respondents who understood their increased risk for each complication.

| Complication | N (%) |
|---|---|
| Retinopathy | 192 (95.1) |
| Neuropathy/Foot Disease | 187 (92.6) |
| Nephropathy | 173 (85.6) |
| Infection | 168 (83.2) |
| MI | 145 (71.8) |
| Stroke | 143 (70.8) |

For either MI or stroke, 168 (83.2%) understood their increased risk, compared to 197 (97.5%) who understood their risk of at least one of the non-cardiovascular complications (p = 0.003). Understanding of increased cardiovascular risk was not higher among those with known cardiovascular disease (CVD) or among those with other risk factors for CVD including hypertension or dyslipidemia. Previous diabetes education also was not associated with increased understanding of CVD risk. Those who understood their increased risk of CVD were more likely than those who did not to also understand the benefits of blood pressure control (89.9 vs. 76.5%, p = 0.03), daily aspirin (48.8 vs. 23.5%, p = 0.007), not smoking (91.1 vs. 79.4%, p = 0.04), and maintaining a normal weight (95.2 vs. 79.4%, p = 0.005).
CONCLUSION: Patients with type 2 DM were more likely to understand their risk of microvascular complications than of macrovascular complications. This is concerning since this group has a much higher risk of morbidity and mortality due to CVD. However, it is reassuring that those patients who do understand their risk of macrovascular disease were also more likely to understand some of the important ways to reduce their risk. Education of both providers and patients should increase emphasis on awareness and prevention of macrovascular complications.

**THROMBOCYTOPENIA AFTER CONCOMITANT ADMINISTRATION OF A IIB-IIIA RECEPTOR INHIBITOR AND A THEINOPYRIDINE PLATELET INHIBITOR.**
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BACKGROUND: Platelet inhibition has had a profound effect on the incidence of acute closure following coronary intervention. Recent reports have noted the association of profound thrombocytopenia with the combination of IIb-IIIa receptor inhibitors and clopidogrel. We sought to determine the incidence of thrombocytopenia, platelet transfusion, blood transfusion, and bleeding complications in patients who underwent percutaneous coronary intervention and were treated with a IIb-IIIa receptor inhibitor and clopidogrel.
METHODS: The records of 504 patients who underwent cardiac catheterization between 1/1/99 and 12/31/99 at a 963-bed tertiary care community hospital were reviewed. 488 (96.8%) patients received abciximab, 15 (3%) received tirofiban, and 1 (0.2%) did not receive either. 146 (29%) of these patients received high loading dose clopidogrel (HLDC, > 300mg). 252 (50%) patients received low loading dose clopidogrel (LLDC, < 300 mg). 106 (21%) of patients received low loading dose ticlopidine (LLDT, 500 mg) and 3 (0.6%) received high loading dose ticlopidine (HLDT, 1000 mg). Endpoints were reviewed pre-intervention and at 2-72 hours post intervention.
RESULTS: The overall incidence of thrombocytopenia (platelet count < 100,000) was 4.8% (24 patients). We found no statistical significant difference in the incidence of thrombocytopenia comparing HLDC and LLDC patients. We also found no statistical significance comparing HLDC and LLDC patients and the need for platelet or blood transfusion.
CONCLUSION: An overall incidence of thrombocytopenia was 4.8% which is much lower than previous reports with an incidence as high as 24% in patients who received both a IIb-IIIa receptor blocker and the platelet inhibitor clopidogrel. In addition we found no correlation between the high dose clopidogrel group and thrombocytopenia. We propose that the use of high dose clopidogrel (>300mg) at the time of coronary intervention carries no increased incidence of thrombocytopenia, platelet or blood transfusions, or bleeding complications.

**IMPACT OF THE NEW NATIONAL CHOLESTEROL EDUCATION PROGRAM GUIDELINES ON PRIMARY CARE.**
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BACKGROUND: New National Cholesterol Education Program (NCEP3) Guidelines released May 2001 now target patients who are at high risk for coronary or peripheral vascular disease (CHD/PVD) for aggressive lipid goals, even if CHD/PVD is not actually present. Therefore, whereas only individuals with CHD/PVD were targeted for aggressive lipid goals (LDL < 100mg/dl) in NCEP2, NCEP3 guidelines have now added to this category patients with either diabetes or a calculated risk of CHD of greater than 20%. Among patients with hyperlipidemia, we sought to determine the impact that the change in NCEP guidelines had on the proportion of patients achieving lipid goals.
METHODS: 7100 medical records selected at random from patients receiving primary care from 61 general internists, 31 nurse practitioners and 116 medical residents at five midwestern Veterans Affairs Medical Centers were audited. Hyperlipidemia was defined by the presence of either lipid lowering medications or an LDL, triglyceride or non-HDL cholesterol value above NCEP goals. The number of patients achieving lipid goals was analyzed using criteria from both NCEP2 and NCEP3 guidelines.
RESULTS: See Table (CRF = # Cardiac risk factors).
CONCLUSION: NCEP3 guidelines resulted in more patients diagnosed with hyperlipidemia yet a lower proportion achieving lipid goals. Failure to achieve lipid goals was particularly pronounced for patients with diabetes and in those at highest calculated CHD risk (CHD risk >20%). To improve performance, strategies targeting these two groups for more aggressive therapy may be particularly effective.

**Impact of NCEP Guidelines on Achieving Lipid Goals in Patients With Hyperlipidemia**

| | NCEP2 LDL Goal | N | Achieved NCEP2 Goal (%) | NCEP3 LDL Goal | N | Achieved NCEP3 Goal (%) |
|---|---|---|---|---|---|---|
| CHD/PVD | <100 | 1647 | 42 | <100 | 1628 | 44 |
| Diabetes | <130 | 528 | 62 | <100 | 716 | 26 |
| CHD Risk >20% | <130 | 564 | 43 | <100 | 833 | 14 |
| ≥2 CRF | <130 | 448 | 54 | <130 | 500 | 47 |
| <2 CRF | <160 | 347 | 74 | <160 | 351 | 61 |
| TOTALS | | 3534 | 50 | | 4028 | 37 |

**EFFICACY AND TOLERABILITY OF THE ORAL DIRECT THROMBIN INHIBITOR XIMELAGATRAN FOR THE TREATMENT OF VENOUS THROMBOEMBOLISM.**
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BACKGROUND: Ximelagatran (Xi) is a novel, oral direct thrombin inhibitor that is being investigated for the treatment of venous thromboembolism. Xi has a predictable and stable pharmacokinetic profile with no known food or drug interactions. Oral treatment with Xi does not require initial parenteral administration of heparin or low-molecular-weight heparin (LMWH). In these studies the efficacy and tolerability of Xi were evaluated in patients with acute deep vein thrombosis (DVT) with or without symptomatic pulmonary embolism (PE), and in one study compared with those of the LMWH dalteparin followed by warfarin.
METHODS: Study 1 was a randomized, controlled, dose-guiding study in which patients (n = 350) with DVT received a fixed dose of oral Xi (24, 36, 48, or 60 mg bid) or sc dalteparin (200 U/kg od) followed by warfarin (target INR 2 – 3), for 12 – 16 days. Thrombus size was evaluated by venography pre- and post-treatment and quantified according to both the Marder score and progression/regression of the thrombus size by at least ± 2 cm. Study 2 was an open-label study in which patients (n = 12) with PE and DVT were administered oral Xi (48 mg bid) for 6 – 9 days and scintigraphic changes were determined. In both studies, clinical symptoms and adverse events, including new PE and DVT symptoms and hemorrhage, were recorded.
RESULTS: In Study 1, evaluation of paired venograms (295 of 350 patients) showed regression of the thrombus in 69% of patients treated with either Xi or dalteparin/warfarin, whereas progression was seen in 8% and 3% of patients, respectively. Changes in thrombus size according to the Marder score were also comparable in all treatment groups. The reduction in pain, edema, and circumference of the affected leg were similar in all Xi and dalteparin/warfarin groups. Hemorrhage resulting in study drug discontinuation occurred during treatment with Xi in 2 patients (24- and 36-mg groups) and in 2 patients in the dalteparin/warfarin group. In Study 2, all patients but one (with malignancy) showed regressed or unchanged lung scintigraphies 6 – 9 days after Xi administration. Xi also reduced pain, edema, and circumference of the affected leg. Xi was well tolerated, and no patient discontinued treatment prematurely.
CONCLUSION: Fixed doses of the oral direct thrombin inhibitor ximelagatran were well tolerated and efficacious, without the need for dose adjustment or routine coagulation monitoring, suggesting a wide therapeutic range. The results of these studies show that ximelagatran has promise as an effective alternative to current anticoagulant therapy in the treatment of acute DVT and PE.

**USE OF COMPLEMENTARY MEDICINE IN PRIMARY CARE: A COMPARISON OF AFRICAN-AMERICAN AND CAUCASIAN PATIENTS.**
C.M. Stoltz[1], K.L. Ravenell[1], J.A. Shea[1]; [1]University of Pennsylvania Health System, Philadelphia, PA *(Tracking ID #51772)*

BACKGROUND: While epidemiological data suggests that the use of complementary and alternative medicines (CAM) is prevalent, existing studies were done mainly with Caucasians. The practices of minority populations, particularly African-Americans, are poorly understood. This knowledge would provide insight into how African-Americans cope with illness and maintain health and wellness. Our goal was to (a) describe the use of CAM in African-Americans and compare this with Caucasians, and (b) identify predictors of CAM use.
METHODS: A cross-section of patients in primary care practice waiting areas of an urban academic medical center was invited to complete a survey on their use of CAM within the past year. Survey items included modalities used, reasons for use, amount spent on CAM, perceived effectiveness, and demographic variables.
RESULTS: Of the 649 patients that arrived for a primary care appointment, 510 (92%) completed surveys. Of these, 237 (46%) were African-American and 213 (42%) were Caucasian. The 54 (12%) who indicated other racial groups were excluded from the analyses. Of the 16 CAM modalities studied, 67% of the African-Americans and 62% of the Caucasians used at least one in the past year. The mean number of CAM modalities used was 1.4 (range 0 –

9) for African-Americans and 1.7 (range 0 – 11) for Caucasians. While the five most frequently used CAMS were the same between groups, the prevalence of use varied. African-Americans used more self-prayer than Caucasian patients (50% vs 27%, p < .0001). In contrast, Caucasians used more herbal remedies (24% vs 14%, p = .004), massage therapy (20% vs 10%, p = .002), and megavitamins (19% vs 11%, p = .02) than African-Americans. There was no difference in the use of relaxation techniques (14% for African-Americans and 20% for Caucasians, p>.05). In stepwise regression models, race was a significant predictor of use of self-prayer, when adjusting for education level, sex, age, and being a Medicaid recipient.
CONCLUSION: Although similar percentages of African-American and Caucasian patients use CAM, differences exist as to the modalities that they use. This study is novel because it captures the practices of more African-Americans than previous studies. These issues need to be considered when caring for patients and in future epidemiological and clinical studies regarding CAM use.

**WHAT PATIENTS WANT IN DISCUSSIONS OF COMPLEMENTARY AND ALTERNATIVE MEDICINE.** S.L. Swenson[1], S. Buell[1], M. White[1], B. Lo[1]; [1]Division of General Internal Medicine, University of California, San Francisco, CA *(Tracking ID #52052)*

BACKGROUND: Few studies have explored how physicians should discuss complementary and alternative medicine (CAM) even though over 40% of Americans report using it. Medical researchers and educators recommend a patient-centered approach to the medical interview. We investigated whether patients prefer a "patient-centered" or a "biomedical" interviewing style in discussions about CAM.
METHODS: We recruited 70 consecutively-eligible patients attending academic general internal medicine or urgent care clinics. Participants watched a pair of videotaped scenarios in which a patient broached CAM use with his or her doctor. The scenarios depicted either a biomedical or a patient-centered interviewing style (in which the physician incorporates the patient's expectations, feelings, and illness beliefs). They were otherwise identical. Participants then completed a 13-item instrument to assess their overall preferences and satisfaction with discrete elements of each doctor's performance.
RESULTS: Our sample was gender-balanced (47.9% female), ethnically diverse (47.8% non-white), young (median age-36), and well-educated (58.6% college graduates). Seventy-seven percent reported using CAM. Although almost two-thirds of participants preferred the physician who depicted a patient-centered communication style, a substantial proportion (34.3%) preferred the physician with the biomedical style. Certain subgroups were significantly more likely to prefer the biomedical approach. Almost 70% of participants with only a high school education preferred the medically-oriented doctor as compared to those with post-high school education (33.3% of those with college and 16.7% with post-graduate education; p < .01). Among those who rated their overall health status as "fair" or "poor", 71.4% preferred the biomedical approach compared to only 25.5% of those reporting "excellent", "very good", or "good" health (p < .005). In addition, participants tended to prefer the videotaped doctor whose style most closely resembled that of their own physicians: among those with patient-centered physicians, 82.4% preferred the patient-centered doctor in the videotape; of those with biomedically-oriented physicians, 54.5% preferred the biomedical doctor. Of note, neither CAM use nor other demographic variables (age, sex, ethnicity, income) was significantly associated with preferences for a specific interviewing style.
CONCLUSION: Some patients favor a biomedical to a patient-centered interviewing style in conversations about CAM. A majority of patients with less formal education or poorer self-reported health status may prefer a biomedical style. It is unclear whether these findings represent considered patient preferences or simply tendencies to prefer interviewing styles with which they are most familiar. Medical training should emphasize a flexible approach to patient-physician communication rather than a given interviewing style.

**META-ANALYSIS OF ANTIARRHYTHMIC DRUGS FOR CONVERSION OF ATRIAL FIBRILLATION & MAINTENANCE OF SINUS RHYTHM.** L. Tamariz[1], E.B. Bass[1], R.L. Mcnamara[1], J.B. Segal[1]; [1]Johns Hopkins University, Baltimore, MD *(Tracking ID #51800)*

BACKGROUND: Atrial fibrillation (AF) is the most common arrhythmia seen by primary care physicians. We performed a meta-analysis to summarize the evidence on the efficacy of agents now available for treatment of AF.
METHODS: We searched MEDLINE and the clinical trial database of the Cochrane Collaboration from 1948 to August 2001. We identified 49 randomized clinical trials (RCTs) on conversion of AF and 31 RCTs on maintenance after conversion. We extracted data on study quality, eligibility criteria, follow up time, dosage, conversion, recurrence and adverse effects. We used a random effects model taking into consideration the heterogeneity of studies on some agents.
RESULTS: The aggregate odds ratio for conversion of AF, compared to control treatment (placebo, digoxin, diltiazem or verapamil) was 28.3 for ibutilide (95% confidence interval (CI) 9.5 – 83.9), 13.8 for dofetilide (CI 4.4 – 42.7), 26.2 for flecainide (CI 7.1 – 96.1), 4.5 for propafenone (CI 2.9 – 7.1), 3.3 for amiodarone (CI 1.6 – 6.5), 3.0 for quinidine (CI 0.8 – 11.8) and 1.5 for sotalol (CI 0.1 – 20.2). The odds ratio for maintenance of sinus rhythm, compared to control treatment, was 7.9 for amiodarone (CI 3.7 – 16.9), 3.6 for propafenone (CI 2.3 – 5.6), 3.0 for quinidine (CI 1.7 – 5.0), 3.4 for sotalol (CI 1.5 – 7.5), and 2.3 for flecainide (CI 0.3 – 14.4). Ventricular arrhythmia was reported in >5% of patients receiving sotalol, ibutilide/dofetilide, or quinidine for conversion, and > 1% of patients receiving sotalol or quinidine for maintenance.
CONCLUSION: Strong evidence of efficacy exists for using ibutilide, dofetilide, flecainide, propafenone or amiodarone for conversion of AF, and for using amiodarone, propafenone, quinidine or sotalol for maintenance of sinus rhythm, but clinicians should consider the risk of ventricular arrhythmia.

**"IT MUST BE DILUTIONAL": FREQUENCY AND EVALUTION OF ASYMPTOMATIC DECREASES IN HEMOGLOBIN AFTER ADMISSION.** E. Tilleros[1], R. Granieri[1], Y. Levy[1]; [1]University of Pittsburgh, Pittsburgh, PA *(Tracking ID #48053)*

BACKGROUND: Daily blood draws are common in internal medicine inpatients. Anecdotally, we have noted frequent asymptomatic decreases in hemoglobin (Hgb) during the first 48 hours after admission. The common onset of anemia in ICU patients has been studied previously and found to be approximately 95% after the first three days of admission. No such study has looked at non-critically ill hospitalized patients. The objective of this study was to assess the freqency and magnitude of asymptomatic decreases in Hgb and physician's documentation and response to them.
METHODS: A retrospective chart review of all consecutive discharges from two medical floors at a tertiary care hospital from January 1 – February 28, 2001 was performed. Inclusion criteria were: admission from the emergency room directly to a general medicine team, initial hemoglobin > 10.0 g/dL and at least one repeat value drawn within the first 48 hours after admission. Excluded were patients transferred from another ward or other medical facility and those with an admission diagnosis of bleed or anemia. For those who had an asymptomatic drop in hemoglobin greater than 1.5 g/dL, the following information was obtained: transfusion frequency, notation and explanation of hemoglobin drop and further diagnostic testing.
RESULTS: 246 charts were examined, 98 met inclusion criteria. The mean drop in Hgb from admission over the first 48 hours was 1.2 g/dL (p < 0.005). 42 patients (42.6%) had an asymptomatic decrease of 1.5 g/dL or greater, with the average drop being 2.2 g/dL. All charts contained notation of the drop in the "Lab" section of the progress notes, 13/42 (31%) mentioned it in the assessment and plan, and 10 (24%) suggested an etiology for the drop. The most common etiology suggested was hemodilution due to IV hydration (8/10). 2 were transfused, with drops of 2.5 and 2.8 g/dL to nadirs of 8.8 and 7.6 respectively. In 12 patients (average drop 2.08 g/dL), further diagnostic testing was pursued, the most common type being stool hemoccults.
CONCLUSION: Asymptomatic drops in hemoglobin within 48 hours of admission are common in internal medicine inpatients, with an average of 1.2 g/dL noted in this study. In nearly half, this drop was greater than 1.5 g/dL. This drop was further evaluated in only a minority of cases, possibly indicating that physicians are aware this is common and therefore take no special notice of it. No obvious threshold was found at which further evaluation or explanation was pursued, implying there is great variance in physician style. In no case was there a discharge diagnosis consistent with the drop (anemia, bleeding), suggesting no significant impact during the hospital stay. This study was limited by its retrospective nature and by its ability to determine the significance of the decreases in hemoglobin. Further clarification of the significance of these findings should be pursued.

**IS ALCOHOL INTAKE ASSOCIATED WITH SUBCLINICAL CORONARY ATHEROSCLEROSIS?** J.K. Tofferi[1], P.G. O'Malley[1], I. Feuerstein[1], A.J. Taylor[1]; [1]Walter Reed Army Medical Center, Washington, DC *(Tracking ID #51732)*

BACKGROUND: The inverse relationship between alcohol intake and clinically evident coronary artery disease is well established, although the potential mechanisms of such a relation remain speculative. We studied the relationship between alcohol intake and subclinical coronary artery disease to assess the possible role of alcohol in atherogenesis.
METHODS: We conducted a prospective study of 632 consecutive consenting, active duty U.S. Army personnel (39 – 45 y.o.) without known CAD, who were undergoing a routine physical as required by regulations. Each participant was surveyed with the validated Block dietary questionnaire which included detailed information on alcohol intake as wine, beer, or hard liquor. Sub-clinical CAD was determined using electron beam computed tomography to quantify coronary artery calcification (CAC).
RESULTS: The mean age was 42 (±2); 83% were male, 72% white, and 83% college graduates. The prevalence of CAC was 17.6% (mean CAC = 10 ± 44). Thirty-three percent drank alcohol daily with an average of 3.2 drinks/day (+2.7). Among daily drinkers alcohol consumption was correlated with SBP (r = 0.267, p < 0.01) and associated with higher average HDL (mean HDL = 53.3 (daily drinkers) vs 50.8, p = .049). There was no correlation between the coronary-calcification score and the alcohol intake as measured by alcohol calories or number of drinks per day (r = 0.02; 95% CI = −0.06 to 0.10; P = 0.58). Calcification scores were similar among tertiles of daily drinkers: 1 drink/day, CAC = 15.3; 2 drinks/day, CAC = 2.8; >2 drinks/day, CAC = 14.0; ANOVA P = 0.18. Further stratified analyses based on type of alcohol, and multivariate analyses controlling for potential confounders failed to show any relationship between alcohol and coronary calcification.
CONCLUSION: Alcohol intake does not appear to be related to subclinical coronary artery calcification, implying that previous observations of a protective effect of alcohol on clinical coronary disease may not involve factors related to calcified atheroma.

**CORRELATION OF SEPSIS-SYNDROME TO THE DEGREE OF IMMUNOSUPPRESSION IN PATIENTS WITH HIV INFECTION.** I. Visweshwar[1], R. Sudheendra[1], V. Thirumavalavan[1], A. Greenberg[1], G. Cable[2]; [1]Jersey City Medical Center, Jersey City, NJ; [2]Atlantic Quality Institute, Florham Park, NJ *(Tracking ID #52448)*

BACKGROUND: Bacterial, viral, fungal and protozoal infections occur commonly in Human Immunodeficiency Virus (HIV) infection. Antiretroviral therapy improves CD4 count and reduces infective episodes from viral, fungal and protozoal agents. To our knowledge, there is no published study addressing the incidence of bacterial infections pre and post-HAART (Highly Active Antiretroviral Therapy). A Study correlating CD4 count and Absolute Neutrophil Counts (ANC) to the occurrence of sepsis syndrome is attempted.
METHODS: This is a retrospective study of 536 consecutive patients admitted during a six-month period with HIV infection in an inner city hospital. Out of these 536 patients, 44 patients were diagnosed with 45 episodes of sepsis syndrome. The control group consisted of 50 patients with HIV infection, without evidence of sepsis syndrome admitted during the same time. Parameters including WBC count, ANC and CD4 counts were analyzed. Logistic regression analysis was applied to determine the independent effect of ANC and CD4 counts on the occurrence of sepsis syndrome.
RESULTS: Logistic regression analysis revealed no statistically significant correlation between ANC (p = 0.15) or CD4 counts (p = 0.49) to the occurrence of sepsis syndrome in the 44 patients with HIV infection compared to 50 HIV patients without sepsis.
CONCLUSION: Our results suggest that sepsis syndrome in HIV infection has no direct association with either ANC or CD4 counts. The clinical significance of this observation is that

this calls into question, the open-ended use of G-CSF and GM-CSF in the treatment of HIV patients with neutropenia. Further prospective studies are recommended to clarify this vital issue.

**Logistic Regression Variable Estimates of Likelihood of Sepsis Syndrome in HIC Patients**

| Variable | Odds Ratio | 95% Confidence Limits | Wald p Value |
|---|---|---|---|
| Age of patient | 1.000 | 1.000/1.002 | 0.03 |
| ANC | 1.000 | 0.953/1.051 | 0.98 |
| CD4 Count | 0.99 | 0.995/1.002 | 0.49 |

**UNDER-USE OF BETA-BLOCKERS FOLLOWING ACUTE MYOCARDIAL INFARCTION IN COMMUNITY HOSPITALS.** R.E. Watson[1], A.B. Olomu[1], F.C. Dwamena[1], F. Ahmed[1], P. Valilenko[1], B. Mcintosh[1], H. El-Tamimi[1], J.J. Ferlinz[1]; [1]Michigan State University, East Lansing, MI *(Tracking ID #51332)*

BACKGROUND: Several randomized controlled trials have demonstrated that beta blocker (BB) therapy for acute myocardial infarction (AMI) decreases cardiovascular mortality and reinfarction and increases survival. Previous studies documenting under-utilization of BBs following AMI have mainly involved university or Veteran's hospitals or they analyzed Medicare databases. The Michigan State University Inter-Institutional Collaborative Heart (MICH) Study Group studied BB use in community hospitals in Michigan.
METHODS: We enrolled and reviewed the charts of all patients prospectively identified with AMI between January 1994 and April 1995 in five mid-Michigan community hospitals. Exclusion criteria included chronic obstructive pulmonary disease, congestive heart failure, left ventricular ejection fraction <35, complete heart block, pulse <60, and use during the hospitalization of an intraaortic balloon pump or pressors for hypotension.
RESULTS: Out of 1,163 AMI patients, we found 347 were indisputable, ideal candidates for BB therapy. Of these 81 had had a previous AMI, and only 26% of them were on a BB at the time of admission. During the current hospitalization only 54% received a beta blocker, and only 34% were discharged on a BB. With logistic regression race, age, and gender were not significant predictors of BB use, except for women with previous AMI being more likely than men to be on a BB at the time of admission (O.R. 1.96, 95% CI a.07 – 3.57, p = 0.027).
CONCLUSION: We found significant under-utilization of this potentially life-saving therapy in our community hospitals in patients following AMI. This underscores the need to improve awareness of the benefits of BBs in AMI among practicing physicians.

**UNDER-USE OF ASPIRIN FOLLOWING ACUTE MYOCARDIAL INFARCTION IN COMMUNITY HOSPITALS.** R.E. Watson[1], A.B. Olomu[1], F.C. Dwamena[1], F. Ahmed[1], S. Smith[1], B. Mcintosh[1], G. Krishnan[1], J.J. Ferlinz[1]; [1]Michigan State University, East Lansing, MI *(Tracking ID #51334)*

BACKGROUND: Several randomized controlled trials have demonstrated that aspirin therapy for acute myocardial infarction (AMI) decreases cardiovascular mortality and reinfarction and increases survival. Previous studies documenting underutilization of aspirin following AMI have mainly involved university or Veteran's hospitals or they analyzed Medicare databases. The Michigan State University Inter-Institutional Collaborative Heart (MICH) Study Group studied aspirin use in some community hospitals in Michigan.
METHODS: We enrolled and reviewed the charts of all patients prospectively identified with AMI between January 1994 and April 1995 in five mid-Michigan community hospitals. Patients with contraindications to aspirin use were eliminated from the analysis.
RESULTS: We found that out of 1,163 patients 1,021 were ideal candidates for aspirin therapy after their AMI. Exclusion criteria were peptic ulcer disease, coumadin therapy, and hemorrhage during the hospital course. Of these 266 had had a previous AMI, and only 41% of them were on daily aspirin at the time of admission. During the current hospitalization 80.4% received aspirin, and only 72.6% were discharged on aspirin. Logistic regression showed that black patients with previous AMI were less likely than white patients to be on daily aspirin at the time of admission (O.R. 0.36, 95% CI 0.15 – 0.86, p = 0.026). Gender, race, and age were not significant predictors of aspirin use during the hospitalization. Black patients were less likely to be discharged on aspirin (O.R. 0.48, 95% CI 0.30 – 0.77, p = 0.002)
CONCLUSION: We found significant underutilization of this potentially life-saving therapy in our community hospitals in patients following AMI. This was especially true for black patients. This underscores the need to improve awareness of the benefits of aspirin in AMI among practicing physicians.

**OSTEOPOROSIS RISK MANAGEMENT OF FEMALE PATIENTS IN PRIMARY CARE: HOW WELL DOES THE MANAGEMENT ADHERE TO NATIONAL CLINICAL GUIDELINES?** G.S. Wei[1], P.G. O'Malley[2], J.L. Jackson[3]; [1]VA Medical Center, Washington, DC; [2]Walter Reed Army Medical Center, Washington, DC; [3]Uniformed Services University of the Health Sciences, Bethesda, MD *(Tracking ID #50851)*

BACKGROUND: National practice guidelines have been established to help clinicians prevent and treat post-menopausal osteoporosis. Little is known about how well these guidelines are adhered to in the primary care setting. This study attempts to determine what proportion of women's osteoporosis care in an ambulatory clinic setting is in concordance with the National Osteoporosis Foundation (NOF) practice guidelines. It also searches for factors that may affect such adherence.
METHODS: A cross-sectional study of consecutive sampling using self-administered questionnaires was conducted on 451 post-menopausal females in a large U.S. tertiary ambulatory care clinic. Data gathered included each respondent's osteoporosis risk factors and management profile. Based on NOF criteria, each woman was stratified into either a "moderate" or "high" risk group for osteoporosis. Adherence rate for each risk group was assessed from 0 to 100%, based on the proportion of women in each group whose bone-health management adhered to NOF guidelines. Univariate analyses using Chi-square and 2-sample test assessed adherence rates vs. severity of risk group, age, race, having a primary care clinician, and gender of the primary care clinician. Logistic regression was applied for multivariate adjustments.
RESULTS: Among the 451 respondents, 20.4 % were found to be in the moderate-risk group, and 79.6 % in the high-risk group. The combined adherence rate to NOF guidelines was 57.4% (95%CI: 52.7% – 62.0%). The adherence rate was significantly higher in the high-risk group (61.0%) vs. the moderate-risk group (43.5 %), p = 0.002. Adherence rates were also higher among white than non-white patients (67.2% vs. 46.4%, p < 0.001); and among those with a primary care clinician vs. those without a primary care clinician (62.2% vs. 41.7%, p = 0.003). These associations remained statistically significant after multivariate adjustments. Adherence rate was not associated with a patient's age or the gender of her primary care clinician.
CONCLUSION: Slightly over half of post-menopausal women in a primary care setting are receiving bone-health management that is in concordance with NOF guideline. Those at higher risk for osteoporosis are more likely to receive NOF-suggested care. White patients and those having a primary care clinician are also more likely to receive such care. Adherence is not associated with patient's age or the gender of her primary care clinician.

**BONE DENSITY REFERRAL DECISION RULES: CORRELATION WITH CLINICAL FRACTURES.** G.S. Wei[1], P.G. O'Malley[2], J.L. Jackson[3]; [1]VA Medical Center, Washington, DC; [2]Walter Reed Army Medical Center, Washington, DC; [3]Uniformed Services University of the Health Sciences, Bethesda, MD *(Tracking ID #50862)*

BACKGROUND: Several decision rules based on clinical criteria have been developed to guide clinicians on which post-menopausal women to select for bone mineral density (BMD) testing. These have all been validated against BMD scores rather than actual fractures. Our purpose was to see how well these nationally adopted rules predicted the presence of fractures in a primary care cohort.
METHODS: A cross-sectional study using self-administered questionnaires was conducted on post-menopausal females 45 years and older in a large U.S. tertiary ambulatory care clinic. Data gathered included each woman's osteoporosis risk factors, as well as any personal history of wrist, hip, and/or spine fractures. Three decision rules were tested: Osteoporosis Risk Assessment Instrument (ORAI); Age, Body, Size, No Estrogen (ABONE); and body weight less than 70 kg (Weight criterion). Using its original scoring system for BMD-testing selection, each decision rule was tested for its ability to correlate with a personal history of fractures. Main outcome measures for each rule included relative risk (RR), area under the receiver operating characteristics (aROC) curve, sensitivity, and specificity.
RESULTS: The study population comprised of 451 women, of whom 68 (15.1%) had a personal history of wrist, hip, and/or spine fractures. The results of each decision rule for predicting those with a history of such fractures are listed in the table below. Note that although RR is similar among the 3 rules, ORAI exhibits the largest aROC and highest sensitivity.
CONCLUSION: In the primary care setting, ORAI decision rule appears to perform better than ABONE or Weight criterion at capturing those post-menopausal women with history of osteoporosis-type fractures. This study was limited by its size and its cross-sectional design. Future larger, prospective studies are needed to further assess and validate the ORAI's ability to predict fractures.

**Test Characteristics**

| Rule | RR (95%CI) | aROC(95%CI) | Sensitivity | Specificity |
|---|---|---|---|---|
| ORAI | 1.9 (1.1 – 3.4) | 0.65 (0.57 – 0.72) | 91% | 18% |
| ABONE | 2.0 (1.3 – 3.2) | 0.61 (0.53 – 0.68) | 59% | 62% |
| Weight | 1.9 (1.2 – 3.1) | 0.59 (0.53 – 0.66) | 90% | 20% |

**BARRIERS TO SELF-MANAGEMENT FOR DIABETIC PATIENTS IN A HOSPITAL-BASED INTERNAL MEDICINE CLINIC.** J. Ronyak[1], G.C. Wickstrom[1], E. Szilagi[2], J. Wickstrom[3], L. Clough[1]; [1]Summa Health System, Akron, OH; [2]Wellesley College, Wellesley, MA; [3]Grinnell College, Grinnell, IA *(Tracking ID #52287)*

BACKGROUND: Research is needed to provide insights into patient and provider characteristics and behaviors that facilitate disease management in primary care settings. This project is focused on diabetic patients receiving primary care in an Internal Medicine Clinic to gain a better understanding of the diabetic patient's experience of self-management. Our research goal was to identify factors that hinder successful self-management of diabetes in a hospital-based clinic patient population.
METHODS: In our primary care clinic population of 7,000 patients, 16% have diabetes. Widely accepted generic and diabetes-specific measures that have established validity and reliability with community samples of diabetic patients were used to develop a comprehensive interview instrument to assess self-management behaviors and attitudes. Interviews were completed with 45 diabetic clinic patients in July 2001. Responses were analyzed with correlation analysis using SPSS software.
RESULTS: In the sample, patients' ages ranged from 36 to 80 years, 38% were African-American, 62% were white, 78% were low-income, and 62% had HbA1c > 7.0. African-American patients were far more likely to rate their health as "fair" or "poor" (82.4%) when compared with white patients (53.5%). Nearly half of the patients in the sample (48.9%) had at least one emergency department visit and 29% had at least one hospitalization during the previous 12 months. Negative affect was found to be associated with fewer days of exercise reported ($r = -.383$; $p < .05$) and feeling able to control blood glucose levels ($r = -.457$; $p < .01$). There was strong agreement about the importance of managing diet appropriately (96%), yet only 53% agreed that they felt able to do this. Many of the patients voiced concern that they lacked up-to-date self-management knowledge. Chart reviews revealed that patients in the sample had an average of 6 comorbidities to manage along with their diabetes. The higher the number of comorbidities, the less the patient felt able to follow their eating plan ($r = -.380$; $p < .01$) and the less important they felt it was to get physical

exercise ($r = -.406$; $p < .05$). Social support was positively associated with following an eating plan, days of exercise, the importance of exercise, feeling able to control weight and handle feelings about diabetes.
CONCLUSION: Negative affect, a lack of knowledge about diabetes management and comorbidities appeared to be the greatest barriers to self-management in this clinic population. Having support promoted self efficacy and better self-management. Information gained from this study is being used to inform the design of a clinical intervention for patients in the clinic who are at high risk for complications from diabetes.

**COGNITIVE IMPAIRMENT IN THE ALCOHOL HANGOVER.** J. Wiese[1], S. Mcpherson[1], M. Shlipak[2]; [1]Tulane University, New Orleans, LA; [2]University of California, San Francisco, San Francisco, CA *(Tracking ID #51829)*

BACKGROUND: Cognitive impairment due to the alcohol hangover has been implicated in occupational injuries. No study has objectively demonstrated cognitive impairment during the alcohol hangover. Simple instruments have been used for the evaluation of cognitive impairment in patients with multiple sclerosis. We used these instruments to quantify the cognitive impairment of the alcohol hangover.
METHODS: Forty volunteer subjects completed three simple cognitive function instruments that had been previously validated in patients with multiple sclerosis; these were the paced serial addition test (PSAT), a digital symbol modalities test (DSM), and the cancel CE test. Subjects also completed a survey to assess symptom severity and the ability to perform work-related tasks. Subjects then consumed between 0.5 to 1.75 g of alcohol per kilogram of body weight from 8 pm to 12 am. A blood alcohol concentration (BAC) was obtained, and they were returned to their home. At 10 am the following morning, a repeat blood alcohol level was obtained. The cognitive tests and survey instrument were repeated.
RESULTS: The mean blood alcohol level at 1 am was 0.17 g/dl (± 0.05 SD). All subjects had a BAC less than 0.01 the following morning. Subjects had a 22% decline in DSM performance (mean decline 41 sec.; 95% CI, 31 to 50; $p < 0.001$) and a 16% decline on the PSAT (mean decline 14 correct answers; 95% CI, 7 to 20; $p < 0.001$). There was a 6% decline in performance of the CE test (mean decline 7 sec.; 95% CI, 2 to 13; $p < 0.001$). Cognitive function measured by the PSAT and symptom assessment were only moderately correlated. ($r = 0.36$). There was an inverse relationship between BAC at 1 am and cognitive performance the following morning ($r = -.62$).
CONCLUSION: The alcohol hangover is associated with a significant cognitive impairment that can be detected using simple cognitive instruments. The cognitive impairment of the alcohol hangover does not correlate well with symptom severity; thus, symptoms may not be an effective screen for safe work performance in individuals with hangover.

**THE EFFECT OF OPUNTIA FICUS INDICA ON THE SEVERITY OF THE ALCOHOL HANGOVER.** J. Wiese[1], S. Mcpherson[1], M. Shlipak[2]; [1]Tulane University, New Orleans, LA; [2]Univ. of California San Francisco, San Francisco, CA *(Tracking ID #51830)*

BACKGROUND: The severity of the alcohol hangover is proportional to the inflammation induced by bi-products of alcohol metabolism and impurities (congeners) in the type of alcohol consumed. Heat shock proteins (HSP) have been shown to decrease the inflammatory response to stressful stimuli. The prickley pear plant (Opuntia ficus indica; OFI) has been shown to increase HSP's. Using a double-blind, crossover design, we evaluated the effect of this plant on the severity of the alcohol hangover.
METHODS: Seventy subjects completed three cognitive function instruments that had been previously validated in patients with multiple sclerosis; these were the paced serial addition test (PSAT), a digital symbol modalities test (DSM), and the cancel CE test. Subjects also self-assessed their symptoms and ability to perform work-related tasks. Subjects were then given 800 IU of OFI or placebo. Between 8 PM and 12 AM, subjects consumed 1.75 g of alcohol per kilogram of body weight. Subjects were given the choice of dark (bourbon, scotch) or light (vodka, gin) alcohol. A blood alcohol level (BAL) was obtained at 1 AM. At 10 am the following morning, a repeat blood alcohol level was obtained. The cognitive tests and survey instrument were repeated. Two weeks later the study protocol was repeated; subjects who received OFI received placebo, and vice versa. Subjects consumed the same type of alcohol on both occasions.
RESULTS: Subjects who received the OFI had a 21% reduction in hangover symptoms (mean reduction in symptom index: 3.3 points ; 95% CI: 1.3 to 5.3; $p = 0.04$) and a 12% improvement in the ability to perform work-related tasks. (mean improvement in work index 2.3; 95% CI: −0.3 to 4.4; $p = 0.05$). Subjects who consumed dark alcohols had a 30% reduction in symptoms and a 20% improvement in work-related tasks while taking the OFI; subjects who consumed light alcohols had no change in their symptoms or performance scores. There was no difference in performance on the PSAT, DSM or Cancel CE tests.
CONCLUSION: Opuntia ficus indica reduces the subjective symptoms of the alcohol hangover and improves self-assessed work performance ability. This effect is greatest in dark alcohols. There was no improvement in cognitive performance.

**RELATING THE COGNITIVE IMPAIRMENT OF THE ALCOHOL HANGOVER TO THAT OF ALCOHOL INTOXICATION.** J. Wiese[1], C. Oconnor[1]; [1]Tulane University, New Orleans, LA *(Tracking ID #52363)*

BACKGROUND: The cognitive impairment associated with acute alcohol consumption is well known. Cognitive impairment also occurs during the alcohol hangover, even when the blood alcohol level has returned to normal. The degree of this impairment has not been well characterized. We used the previously validated Automated Neurologic Assessment Module (ANAM) to assess cognitive function during sequential alcohol consumption, and during the alcohol hangover.
METHODS: Seventy subjects consumed 1.75 g/kg of alcohol over six hours. A blood alcohol level (BAL) was obtained at 1 AM. At 10 am the following morning, a repeat blood alcohol level was obtained. Prior to consumption of the alcohol and during the following morning's alcohol hangover, study subjects were evaluated with the ANAM instrument. During a separate study, twelve of these subjects consumed 30 g of alcohol each hour for five hours. Prior to each drink, subjects were tested with the ANAM computer instrument. The ANAM instrument measures reaction time, concentration, short-term memory, and math processing.
RESULTS: Performance on all measures decreased as more alcohol was consumed. After five drinks, reaction time increased from 281 msec to 350 msec ($P = 0.001$) and short-term memory decreased from 98% to 74% accuracy. The procedural memory score decreased from 117 to 80 ($p = 0.001$), and accuracy of simple math processing declined from 93% to 85% ($p = 0.04$). All patients had a blood alcohol level of zero prior to the cognitive testing in the hangover period. Reaction time while hungover was 285 msec; short term memory accuracy was 90%. The procedural memory score was 90 and simple math processing 90%.
CONCLUSION: The alcohol hangover is associated with cognitive impairment that is similar to that experienced after consuming between one and two alcohol drinks.

**IDENTIFYING PATIENTS WITH MAJOR DEPRESSION IN PRIMARY CARE.** J.W. Williams[1], P.H. Noel[2], J. Cordes[2], J. Worchel[2]; [1]Duke University, Durham, NC; [2]South Texas Veterans Health Care System, San Antonio, TX *(Tracking ID #51998)*

BACKGROUND: Because of the complexity of the DSM-IV diagnostic system, few primary care physicians make criterion based depression diagnoses. Identifying a core set of symptoms with high sensitivity and little variability across patient populations could improve diagnostic efficiency. Our goals were to: 1) determine the most commonly occurring depression symptoms in older patients with major depression, 2) determine whether the symptoms varied by selected patient characteristics, and 3) evaluate the sensitivity of previously identified core depression symptoms.
METHODS: The study sample consisted of 1243 outpatients with major depression, a subset of the 1801 subjects enrolled in the IMPACT study, a clinical trial of depression care management for individuals >60 years of age with major depression or dysthymia recruited from 18 diverse primary care clinics. Depressive diagnoses were confirmed with the Structured Clinical Interview for DSM-IV. Cognitive status was assessed using a 6-point subset of the mini-mental status examination. Approximately 10% of otherwise eligible subjects were excluded because of a history of bipolar disorder or schizophrenia, active alcohol abuse, severe cognitive impairment, high suicide risk, or active care by a psychiatrist. Symptom frequency was evaluated by race, gender, education, income, cognitive status, and number of chronic illnesses using $p < 0.005$ to adjust for multiple testing. Using a threshold of ≥2, we evaluated the sensitivity of 4 core depressive symptoms (sleep disturbance, anhedonia, worthlessness, and decreased appetite) previously identified by Brody as being the most highly associated with functional impairment in a younger cohort of patients.
RESULTS: Demographic and clinical descriptors were: mean age of 70.9 (SD 7.4); women (66%); White (77%), Black (11%), Hispanic (8%); less than High School education (21%); chronic medical illnesses 3.8 ± 1.9. The most frequent depressive symptoms were: fatigue (93%), depressed mood (87%), anhedonia (83%), insomnia (75%), appetite change (64%), difficulty concentrating (59%), and worthlessness (55%). Thoughts of death were present in 38%. Symptom frequency did not vary significantly by cognition, gender, or income. African Americans were less likely to report anhedonia (73% vs. 85%, $p = 0.002$). College graduates were more likely to report guilt (18%) than those with less than a high school education (5%, $p < 0.0001$). The four core depressive symptoms were highly sensitive for major depression (98%; 95% CI 97 to 98).
CONCLUSION: Among patients with a criterion-based diagnosis of major depression, symptoms vary little by patient characteristics. Our findings confirm that the four Brody-identified core symptoms are highly sensitive for major depression in older primary care patients.

**EFFECTS OF A VERY-LOW-CARBOHYDRATE DIET PROGRAM: A RANDOMIZED, CONTROLLED TRIAL.** W.S. Yancy[1], R. Bakst[1], W. Bryson[1], K. Tomlin[1], C. Perkins[1], E.C. Westman[1]; [1]Duke University, Durham, NC *(Tracking ID #51277)*

BACKGROUND: Concerns remain regarding the effects low-carbohydrate, high-fat, high-protein diets have on body composition, renal function and serum lipids. Controlled trials of these diets are essential to better evaluate efficacy and safety. Our goal was to compare the 6-month metabolic, body weight and body composition effects of a very-low-carbohydrate diet (LC), nutritional supplementation, exercise recommendation and group meetings versus a low-fat, low-cholesterol, reduced calorie diet (LF), exercise recommendation and group meetings.
METHODS: One hundred twenty overweight, hyperlipidemic community volunteers were randomized to either the LC or LF arm, and monitored every 2 weeks for 3 months and monthly thereafter in an outpatient clinic; enrollment is complete. Presented results are from the 46 of a possible 69 participants who have completed the study. Data collection will be completed in January, 2002.
RESULTS: Baseline subject characteristics and dropout rates were similar between groups. Ketonuria occurred in the LC group but not in the LF group ($p < 0.02$ at each time point for between-groups comparisons of mean ketonuria). From baseline to 6 months, mean body weight decreased 13.3 ± 4.6% (−12.6 kg) in the LC group and 8.6 ± 5.9% (−8.8 kg) in the LF group ($p = 0.004$, between-groups comparison). By bioelectric impedance, the LC group lost significantly more fat mass than the LF group (LC: −9.7 ± 3.6 kg, LF: −6.5± 6.0 kg, $p = 0.04$), while fat-free mass changes were similar between groups (LC: −2.9 ± 2.1 kg, LF: −2.4 ± 2.1 kg, $p = 0.4$). Triglycerides decreased significantly in both groups (LC: −92.2 ± 85.5 mg/dl, LF: −60.2 ± 100.2 mg/dl). Cholesterol decreased significantly in the LF group (−13.5 ± 22.5 mg/dl). HDL-C increased (+5.2 ± 10.6 mg/dl) and Chol/HDL ratio decreased (−0.7 ± 1.1) significantly in the LC group ($p < 0.05$ for above within-group lipid changes). However, changes in lipid classes were similar in between-groups comparisons. Lipid subclass changes were not remarkably different between groups. Serum BUN increased significantly more in the LC group (13.2 ± 2.2 mg/dl baseline to 16.1 ± 4.7 mg/dl at 6 months, $p = 0.02$ for between-groups comparison) but creatinine did not change significantly in either group. In those with adequate 24-urine collections, mean creatinine clearance decreased significantly in the LF group ($n = 18$, −60.9 cc/min, $p = 0.002$) but not in the LC group ($n = 20$, −8.3 cc/min, $p = 0.4$).

CONCLUSION: In an interim analysis, the LC diet program led to greater weight loss, greater loss of fat mass, similar serum lipid changes, and an increase in serum BUN as compared with the LF diet. Further research regarding very-low-carbohydrate diets is warranted.

# DECISION AND COST EFFECTIVENESS ANALYSIS

### CHANGES IN HEALTHCARE COSTS AND UTILIZATION AFTER ENROLLMENT IN A COMMUNITY-BASED EXERCISE PROGRAM.

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BACKGROUND: Higher physical activity levels are associated with numerous health benefits. Community-based exercise programs provide one avenue to promote exercise adoption, but little is known about the cost-implications of these programs. The Lifetime Fitness Program(c), (LFP) is a community-based, group exercise program for older adults in western Washington. We studied whether healthcare costs or utilization for Medicare-eligible participants in LFP were different from otherwise similar individuals who never participated.
METHODS: The overall sampling frame consisted of members of Group Health Cooperative of Puget Sound (GHC) who were continuously enrolled between 10/1/1997 and 12/31/2000. The intervention cohort included all enrollees, ≥ 65 years old, who participated in LFP at least once. An age and gender-matched comparison cohort was generated from enrollees who never attended LFP, using a 3:1 frequency matching procedure. Cost and utilization estimates were obtained from GHC administrative data. Annualized estimates for the period from initial LFP participation through 12/31/2000 were compared after adjusting for baseline estimates and co-morbidity status, using a previously validated chronic disease score. Utilization counts were analyzed using Poisson regression. A two-part generalized linear model was used to analyze the relationship between healthcare costs and LFP participation.
RESULTS: We identified 1114 enrollees who participated in LFP at least once. Average age was 74.9 years; 75.3% were female. The mean number of LFP visits was 83.4, occurring over an average of 63.8 weeks. For the entire sample, total annualized follow-up healthcare costs for LFP participants were 94.8% (95% CI 88.7% – 101.3%) of controls. A regression analysis that incorporated the total number of LFP visits as a dosage variable demonstrated a significant dose-response relationship ($p < 0.01$), suggesting a 1.7% cost reduction (approximately $85 saved) for each 10 additional LFP visits. For the 333 participants with the highest LFP use (>120 visits; mean ~2 visits / week), total adjusted follow-up costs were 78.3% (95% CI 70.0% – 87.5%) of controls.
CONCLUSION: Higher users of a large community-based exercise program had lower total annualized healthcare costs and comparable utilization following program enrollment. These findings suggest that community-based exercise programs offer the potential for some healthcare cost savings, even in elderly adults over a relatively short follow-up. Future prospective studies that include full economic comparisons are encouraged to confirm the strength and generalizability of these findings.

### COST-EFFECTIVENESS OF SCREENING FOR GONORRHEA IN URBAN EMERGENCY ROOM DEPARTMENTS.

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BACKGROUND: The prevalence of Neisseria gonnorrhoeae (GC) among adolescents and young women attending inner-city emergency rooms (ER) ranges from 3% to 10% but screening has historically not been feasible in this setting. Our objectives were to (1) assess the cost-effectiveness of newer technologies that bypass the need for a pelvic exam and reduce loss to follow-up, and (2) evaluate selective age-based screening policies compared to no screening.
METHODS: We developed a state-transition Markov model of the natural history of GC and simulated screening, diagnosis, and treatment in a cohort of 10,000 15-year old U.S. women. Adopting a societal perspective, we compared no screening, universal screening, and selective age-based screening using either the: (1) ligase chain reaction (LCR) on a urine sample (available now); or (2) rapid immunochromotographic assay (RIA) on a clinician-collected vaginal sample (anticipated to be available in the next year). We assumed 80% of LCR screen-positive women would be treated (20% loss to follow-up) and 100% of RIA screen-positive women would receive immediate treatment. We assumed a peak GC prevalence of 6%, assay costs of $7 (LCR) and $20 (RIA), and PID complication costs ranging from $1,150 to $7,000. Clinical outcomes included cases of GC, pelvic inflammatory disease (PID), major PID sequelae, and quality-adjusted life expectancy (QALE). Economic outcomes included incremental cost-effectiveness ratios (cost per quality-adjusted life year saved). Data were obtained from population-based studies, national databases and published literature.
RESULTS: Compared to the current standard of care, screening all women between 15 and 24 years of age prevented 278 to 342 cases of PID using LCR and RIA, respectively. RIA was more effective and cost-effective (i.e., dominated) than LCR and cost $1,850 per QALY. Provided the RIA assay (base case $20) was less than $100, the cost-effectiveness ratio for screening with the rapid test was less than $10,000 per QALY. Selective targeting of adolescents ages 15 to 19, or young women ages 20 to 24, was never as effective as screening all women between the ages of 15 and 24. Results were stable despite varying the prevalence of GC, direct medical costs, and quality of life weights over a wide plausible range.
CONCLUSION: Screening for GC within an urban-ER setting using new tests that facilitate rapid screening and treatment will prevent substantial reproductive morbidity. Age-based screening between 15 and 24 has a cost-effectiveness ratio that is more attractive than many current preventive health interventions.

### THE DIAGNOSTIC EVALUATION OF RECTAL BLEEDING: A COST-EFFECTIVENESS ANALYSIS COMPARING FOUR EVALUATION STRATEGIES.

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BACKGROUND: Rectal Bleeding in adults is a common symptom encountered in primary care practice with an annual prevalence of 14 – 19%. This symptom is associated with serious colorectal disease including malignancy and with benign anal diseases such as hemorrhoids. The clinician must decide which patients require further evaluation and by what means. Using data from a systematic review of the literature, we performed a cost-effectiveness analysis of four commonly employed strategies in the diagnostic evaluation of rectal bleeding.
METHODS: We developed a Markov decision model comparing watchful waiting (WW), flexible sigmoidoscopy (FS), flexible sigmoidoscopy followed by air contrast barium enema (FS + ACBE), and colonoscopy (CS). Subjects were a hypothetical cohort of adults over the age of 40 presenting to primary care practice with rectal bleeding. Main outcomes measures included quality-adjusted life expectancy, cost, and incremental cost-effectiveness measured in quality-adjusted years of life saved (QALY). We performed sensitivity analyses based on the range of values available in the literature.
RESULTS: All strategies were cost-saving (less costly and more effective) as compared to watchful waiting. As compared to flexible sigmoidoscopy, both FS + ACBE and colonoscopy were cost-effective: FS + ACBE would cost $3198 per QALY and colonoscopy would cost $179 per additional year of life in good health. Colonoscopy was cost-saving as compared to FS + ACBE. Univariate sensitivity analyses found the model to be most sensitive to cost of colonoscopy, age at presentation, and the prevalence of polyps in the population of patients with rectal bleeding. However, the cost per QALY of colonoscopy as compared to FS never exceeded $12,000.
CONCLUSION: In the diagnostic evaluation of rectal bleeding in adult patients over the age of 40, watchful waiting with further work-up based on symptoms is the most costly and least effective strategy. Flexible sigmoidoscopy is the least expensive option; however, colonoscopy adds life expectancy with an estimated cost-effectiveness of $179 per additional year of life in good health. Colonoscopy is both more effective and less costly than the strategy of combining flexible sigmoidoscopy with ACBE. While the model relies on estimates of disease progression, test characteristics, and costs, ranging these estimates through all values found in the literature does not significantly alter the conclusion that colonoscopy is a cost-effective strategy for evaluating rectal bleeding.

### NONCOMPLIANCE WITH STATIN THERAPY: LOST CLINICAL BENEFITS AND IMPLICATIONS FOR COST-EFFECTIVENESS.

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BACKGROUND: Clinical trials have shown that HMG Co-A reductase inhibitors (statins) substantially reduce cardiovascular morbidity and mortality in patients treated for five years. In actual practice, however, noncompliance with therapy is common. The clinical and economic significance of noncompliance with statins has not been well described.
METHODS: We developed a Markov model to evaluate 1) the morbidity and mortality attributable to noncompliance; 2) the cost-effectiveness of statins under typical compliance; and 3) the cost-effectiveness of improving compliance. The model compared 3 scenarios of statin use in a hypothetical cohort of patients 65 – 84 years of age with pre-existing myocardial infarction (MI): ideal compliance, typical compliance, and no treatment. The no treatment and ideal compliance scenarios were based on the placebo and treatment arms of the Cholesterol And Recurrent Events (CARE) trial, respectively. The typical compliance scenario was based on filled prescription data from 1035 patients similar to CARE participants. Statin effectiveness for this group was interpolated from the no treatment and ideal compliance groups. Cost data were derived from published studies and included the cost of a compliance-enhancing intervention required to achieve and maintain ideal compliance.
RESULTS: Elderly patients with pre-existing MI and typical statin compliance received only 41% of the quality-adjusted life expectancy that could be gained under ideal compliance. For 1000 patients with typical compliance, 51 reinfarctions and 25 strokes occurred due to noncompliance alone. Compared with no treatment, typical compliance with statins yielded an average of 0.16 additional QALYs at a cost of $14,300 per QALY gained. Improving compliance to ideal levels would yield an additional 0.23 QALYs compared to typical compliance, at an incremental cost of $19,500 per QALY gained, including the cost of a compliance-enhancing intervention. Improving compliance to ideal levels was highly cost-effective for intervention costs as high as $750 per patient per year.
CONCLUSION: A typical elderly population using statins for secondary prevention can be expected to receive less than half the potential benefits of therapy. While treatment is still relatively cost-effective under these circumstances, an effective compliance-enhancing intervention would be an attractive use of resources over a wide range of intervention costs.

### A COST-EFFECTIVENESS ANALYSIS OF RECOMMENDED STRATEGIES FOR ACUTE PHARYNGITIS.

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BACKGROUND: A recent clinical guideline recommends 3 different strategies for appropriate antibiotic use for adults with acute pharyngitis (Ann Intern Med 2001; 134:509 – 517). However little is known about the cost-effectiveness of these strategies relying on a clinical score and a rapid streptococcal antigen test (RSAT). The aim of this study was to compare their costs and cost-effectiveness.
METHODS: A cohort of 372 adult patients consulting for sore throat with at least two clinical criteria (fever >38 Celsius, tonsillar exsudates, tender cervical adenopathy, no cough or rhinitis) were enrolled. All patients had RSAT (Strep A OBC II, Abbott) and throat culture. Using these epidemiological estimates, we constructed a decision analysis model comparing the three strategies: 1. systematic use of RSAT; 2. selective use of RSAT for patients with 2 or 3 clinical criteria and treat patients with 4 criteria; 3. no use of RSAT, empirical antibiotic treatment of

patients with 3 or 4 clinical criteria. In the reference case analysis, the cost of antibiotic was $24.91 per person and $4.40 for one RSAT.
RESULTS: The prevalence of group A streptococcus was 37.6%, and RSAT had a sensitivity of 91.4% (95% CI: 85% to 95%) and a specificity of 95.3% (95% CI: 91% to 97%). The selective RSAT strategy resulted in 94.7% of appropriate antibiotic prescriptions, the systematic RSAT strategy in 91.5%, and the empiric treatment strategy in only 75.1%. The cost per case was $13.71 for systematic RSAT strategy, $14.86 for selective RSAT, and $15.00 for the last strategy. The cost per case appropriately treated was $39.84 for systematic RSAT strategy and $122.08 for selective RSAT. The empirical treatment strategy was dominated (higher cost, lower efficacy). These results were sensitive to antibiotic costs (empirical treatment strategy was the preferred strategy if antibiotic costs < $19.30) and RSAT specificity (again empirical treatment strategy if RSAT specificity < 88%).
CONCLUSION: The systematic use of RSAT is a cost-effective strategy for the management of pharyngitis in adults in settings where specific RSAT is available and antibiotic costs are high.

**COST-EFFECTIVENESS OF VACCINATION AND EARLY DETECTION RESPONSE STRATEGIES FOR INHALATIONAL ANTHRAX EXPOSURE.** R.S. Braithwaite[1], D.B. Fridsma[1], M.S. Roberts[1]; [1]University of Pittsburgh, Pittsburgh, PA *(Tracking ID #51719)*

BACKGROUND: Recent deaths have resulted from intentional exposures to aerosolized *B Anthracis* spores, and efforts are underway to decrease mortality from potential future attacks. Our purpose was to estimate the cost-effectiveness of vaccination and early-detection strategies.
METHODS: We developed a Markov model to estimate the mortality and costs that may result from an intentional anthrax release on persons in one or more US metropolitan areas. Two scenarios were considered: (1) Multiple sites of exposure, resembling the recent US attack, and (2) Large, single site of exposure, resembling the "worst case scenario" analyzed in previous published reports. For each scenario, universal vaccination and early detection strategies were compared to a default response that assumed eventual discovery of the release. The early detection strategy was assumed to use population monitoring to "alarm" at the earliest increase in prevalence of symptoms specific for inhalational anthrax and trigger rapid distribution of medication. We modeled early detection systems generically using sensitivity and specificity so that other detection strategies could be considered. Morbidity and mortality from anthrax exposure and efficacy of treatments were based on data from recent attacks. Vaccination efficacy and mortality were based on published reports.
RESULTS: Our model predicted 33,442 deaths would result from a large (100,000 person) single source exposure in the absence of any early response strategy (33,411 from anthrax, 31 from treatment). Vaccination would decrease deaths to 14,023 (13,937 anthrax, 86 treatment) at a cost-effectiveness of $22,100 per year of life saved, and early detection would decrease deaths to 3,300 (3,263 anthrax, 37 treatment) at a cost-effectiveness of $536 per year of life saved. Early-detection remained cost-effective over a plausible range of assumptions regarding treatment efficacy, mortality, and cost, and detection system sensitivity, specificity, and cost. The majority of benefit arose from increased efficiency in medication distribution rather than earlier detection of exposure. Vaccination was no longer cost-effective (>$50,000/life-year) if compliance with vaccination was <25%, vaccine efficacy was <35%, or vaccine cost was >$300. Our model predicted that 16 deaths would result from a small (100 person) multi-source exposure similar to the recent US attack. Universal vaccination would *increase* the number of deaths (76 deaths; 7 from anthrax, 69 from treatment). Early detection would decrease deaths to 3, but with low cost-effectiveness ($3,200,000 per life year saved).
CONCLUSION: Prophylactic vaccination was not cost-effective under either release scenario, and may increase deaths due to mortality from the vaccine. Implementing an early detection strategy may be cost-effective if a large, single-source exposure is assumed, but should be coupled with efficient treatment interventions.

**RANDOM VERSUS PLANNED TREATMENT INTERRUPTION IN HIV.** R.S. Braithwaite[1], A.C. Justice[2], M.S. Roberts[1]; [1]University of Pittsburgh, Pittsburgh, PA; [2]V.A.M.C. Pittsburgh, Pittsburgh, PA *(Tracking ID #52127)*

BACKGROUND: Nonadherence to antimicrobial treatment may accelerate resistance, particularly with chronic infections and rapidly mutating pathogens. In contrast, temporary discontinuation of treatment may theoretically lead to reversion of "wild-type" genotype and may prolong susceptibility. To better understand the clinical implications of this dichotomy, we modeled how viral resistance emergence and survival in HIV are affected by different patterns of treatment interruption.
METHODS: We developed a 1st order Monte-Carlo simulation which estimates the time elapsed and number of new mutations accrued during the development of resistance to current therapies. Patients start with CD4 count of 500 cells/ml and wild-type viral RNA, and may subsequently develop genotypic mutations. Treatment interruption increases the mutation rate and influences the selective pressures that lead to development of mutations. Patients progress through sequences of regimens until resistance accrues to all drugs, and are at risk for death commensurate with CD4 count and regimen efficacy. For our base-case analysis, we compared two patterns of interruption: *random*, where each drug dose independently had a 25% probability of exclusion, and *planned*, where all drugs were interrupted simultaneously and continuously for 3 months each year (and therefore 25% of doses were also excluded). Probabilities of wild-type reversion were assumed to occur independently over each planned treatment interruption. Months until regimen failure were counted from the start of all treatments.
RESULTS: With no treatment interruption, our model estimated mean times to failure of first drug regimen, last regimen, and death of 66.4, 89.4, and 114.5 months respectively. Random treatment interruption greatly decreased these times (27.1, 38.9, and 69.1 months respectively). Planned treatment interruption had divergent effects depending upon the likelihood of wild-type reversion. With no reversion assumed, mean survival was decreased (102.1 vs 114.5 months). With 10% probability of reversion, survival returned to near baseline (111.9 months). With 50% probability of reversion, mean survival was *increased* (128.2 months). When the frequency of planned interruptions was doubled in sensitivity analyses, mean survival times were always decreased regardless of reversion probability (78.0, 81.3, and 88.2 months for 0%, 10%, and 50% reversion respectively). Planned interruptions also had variable effects on times to failure of first and last regimen.
CONCLUSION: Planned treatment interruption may prolong survival under select circumstances if reversion to "wild-type" virus is assumed possible. However, random interruption is a common mode of nonadherence and may dramatically accelerate phenotypic resistance and shorten survival. Providers should consider ease of adherence as well as efficacy in their treatment recommendations.

**THE CLINICAL AND ECONOMIC BENEFITS OF CHLORHEXIDINE COMPARED TO POVIDONE-IODINE FOR VASCULAR CATHETER SITE CARE.** N. Chaiyakunapruk[1], D.L. Veenstra[1], B.A. Lipsky[1], S.D. Sullivan[1], S. Saint[2]; [1]University of Washington, Seattle, WA; [2]Ann Arbor VAMC and the University of Michigan, Ann Arbor, MI *(Tracking ID #50808)*

BACKGROUND: Intravascular catheters are commonly used in caring for hospitalized patients and often lead to catheter-related bloodstream infection (CR-BSI). Using antiseptic solutions for skin disinfection at the catheter site helps prevent infection. While povidone-iodine solution (PI) is the most commonly used skin disinfectant, a recent meta-analysis of 8 trials indicates that chlorhexidine gluconate solution (CHG) is superior for vascular catheter site care. It remains unclear whether the additional benefit of CHG is worth the extra cost. We sought to aid decision-makers by determining the clinical and economic consequences associated with the use of CHG compared to PI for vascular catheter site skin care.
METHODS: We constructed a decision analytic model using data from randomized controlled trials, meta-analyses, and epidemiological studies. We used a hypothetical cohort of hospitalized patients requiring short-term (i.e., <10 days) peripheral or central vascular catheter access who were given either CHG or PI for site care. The incidence of CR-BSI, death attributable to CR-BSI, and direct medical costs were the primary outcomes. We performed the analysis using the perspective of a healthcare payer; the time horizon was the period of hospitalization.
RESULTS: In the base-case analysis, using CHG for central catheter site care resulted in an absolute decrease in the incidence of CR-BSI of 1.6% (3.1% for PI vs. 1.5% for CHG) and death of 0.23% (0.46% for PI vs. 0.23% for CHG), and a reduction in total health care costs of $113 per catheter used ($224 for PI vs. $111 for CHG). Using CHG for central catheter site care remained the best strategy in all one-way sensitivity analyses. In a multivariate sensitivity analysis, the decrease in CR-BSI ranged from 0.6% to 2.5%, the decrease in death ranged from 0.07% to 0.47%, and the cost savings ranged from $18 to $241. Using CHG for peripheral catheter site care decreased the incidence of CR-BSI by 0.5% (range, 0.1% to 1.2%) and death by 0.005% (range, 0.001% to 0.015%), while also reducing total costs by $8 (range, $2 to $20) per catheter used. Using CHG for peripheral catheter site care was again the best strategy in all one-way sensitivity analyses.
CONCLUSION: Using chlorhexidine rather than povidone-iodine for catheter site disinfection in hospitalized patients requiring short term vascular access is likely to result in decreased morbidity, mortality, and healthcare costs. This unique combination of clinical benefit and cost savings should make this new intervention extremely attractive to healthcare decision-makers and may lead to a paradigm shift in the care of hospitalized patients requiring vascular catheters. Since this simple method can be easily implemented to improve patient safety, replacing povidone-iodine with chlorhexidine gluconate should perhaps take priority in efforts to prevent vascular catheter-related infection.

**COST-EFFECTIVENESS ANALYSIS OF PHARMACOTHERAPIES FOR TOBACCO DEPENDENCE: AN INTERNATIONAL COMPARISON.** J. Cornuz[1], C. Pinget[1], A. Gilbert[2], F. Paccaud[1]; [1]University Hospital, Lausanne, Switzerland; [2]Department of Health Management and Policy, Ann Arbor, MI *(Tracking ID #51743)*

BACKGROUND: Clinical guidelines have identified 5 first-line therapies (four nicotine replacement therapies-gum, patch, nasal spray, and inhaler - and bupropion) to help smokers to quit. Studying the extent to which various tobacco dependence treatments are cost-effective has been recently identified as a research priority. We performed a cost-effectiveness analysis for two countries-the United States and Switzerland - to draw cross-country comparisons.
METHODS: We calculated the cost-effectiveness of general practitioners (GPs) providing their patients smoking on average 20 cigarettes per day each of these five treatments as an adjunct to cessation counseling. We used a Markov model to generate two cohorts of identical smokers: a reference cohort received only cessation counseling and a second cohort received the same counseling plus an offer to use a treatment. The total cost of treatment was based on the cost of the additional time spent by GPs offering, prescribing and following-up treatment, and on the retail prices of the therapies. The results were expressed as the incremental cost per life-year saved. We used the third-party-payer perspective and 3% discount rate.
RESULTS: For the U.S., the cost-effectiveness ratios range from $3,544 to $13,583 for men and from $4,302 to $17,374 for women. Bupropion and the patch are the two most cost-effective treatments and are then followed by the inhaler, spray, and gum. In Switzerland, the cost-effectiveness ratios vary from $1,876 to $7,300 for men, and from $2,277 to $9,338 for women. The most cost-effective treatment in Switzerland is also bupropion, but unlike the U.S., it is followed by the patch, and then in descending order, the spray, the inhaler and gum. For each country, there is also significant variations in cost-effectiveness among the five treatments, which is primarily due to differences in retail prices. For each treatment and in each country, the cost-effectiveness ratio is lowest in men aged 45 to 49 years and in women aged 50-54 years. Sensitivity analysis shows strong influence of the discount rate and the assumptions on other variables (e.g., natural quit rate ranging from 1 to 4% results in a 35% difference in cost-effectiveness ratio).
CONCLUSION: Bupropion and the patch are the two most cost-effective first-line treatments in both the U.S. and Switzerland. These cost-effectiveness ratios are higher for the U.S. than for Switzerland, which reflects a large difference in physicians' fees between the two countries.

**EVALUATION OF TAMOXIFEN FOR THE CHEMOPREVENTION OF BREAST CANCER USING QUALITY-ADJUSTED SURVIVAL: THE CASE AGAINST THERAPY.** S. Cykert[1], N.W. Phifer[1]; [1]University of North Carolina at Chapel Hill and the Internal Medicine Program, Moses Cone Hospital, Greensboro, NC *(Tracking ID #51926)*

BACKGROUND: The Tamoxifen study of the National Surgical Adjuvant Breast and Bowel P-1 Project (NSABBP) was stopped early when a reduced risk of invasive breast cancer was demonstrated in the study population at 69 months. No survival benefit was demonstrated and no quality of life issues were evaluated. The purpose of our study was to compare quality adjusted survival in a cohort of women using tamoxifen chemoprevention to a cohort with similar breast cancer (BrtCA) risk not using tamoxifen.
METHODS: We performed decision analyses using a Markov state transition model. The base patient was a 50 yr. old woman with a 1.66% 5 yr. risk of BrtCA as per the NSABBP study. The yearly rates of brtCA for each stage and tamoxifen related complications were obtained directly from the NSABBP report. Survival rates for BrtCA, endometrial cancer, pulmonary embolus and stroke were derived from the latest literature applicable to these health states. Life expectancy at each age was obtained from CDC life tables. Quality of life measurements for each health state were determined from interviews of 106 women by using a standard gamble approach for the calculation of health utility scores. Sensitivity analyses were performed.
RESULTS: For the base model, the no tamoxifen group had a quality-adjusted survival of 17.3 yrs. compared to 16.0 yrs for the tamoxifen treated group. The model only favored tamoxifen therapy if the health utility score for curable breast cancer fell below 0.27. The measured value for curable brtCA was 0.83 (95% CI 77.3, 88.7) on a scale of 0 (death) to 1.0 (perfect health).
CONCLUSION: Tamoxifen chemoprevention is not appropriate for women with a BrtCA risk similar to that described in the NSABBP study unless the patient expresses an extremely low health utility score for early stage breast cancer.

**COST-EFFECTIVENESS ANALYSIS OF IMMUNIZATION STRATEGIES REGARDING SMALLPOX BIOTERRORISM.** M.M. Davis[1], A.R. Kemper[1], J.R. Wheeler[1], S.J. Clark[1], G.L. Freed[1]; [1]University of Michigan, Ann Arbor, MI *(Tracking ID #51443)*

BACKGROUND: Recent terrorist attacks and anthrax cases have raised concerns about US vulnerability to smallpox bioterrorism. In the event of an attack, the federal government plans to quarantine cases and vaccinate case contacts (Q&V). By the end of 2002 there will be enough smallpox vaccine in US stockpiles to conduct a mass immunization campaign as a preventive strategy. We conducted a cost-effectiveness analysis of mass immunization campaigns vs. the planned Q&V response to an attack.
METHODS: We developed base case assumptions from studies of smallpox epidemiology, vaccination efficacy and adverse events, bioterror scenarios, and the government's planned Q in US now; 2) Case fatality = 30%; 3) Vaccination fatality = 1 per million; 4) Q & V = 25% quarantine of cases beginning 30 days after attack, and vaccination of sufficient number of contacts to reduce base transmission rate from 3 to 2 persons per case. We used a Markov model representing stages of infection, quarantine, hospitalization, and death to estimate the one-year mortality of a smallpox attack that would initially infect 100 persons, a common bioterrorism scenario. We compared the costs of mass immunization programs with different rates of uptake among 1- to 29-year-olds and persons ≥1 year old, supplemented by Q & V, to the reference case of Q & V alone. Life-years lost were discounted at 3% annually. 2000 census data were used to form the hypothetical cohort of the US population. Sensitivity analyses were conducted to evaluate the robustness of cost-effectiveness estimates.
RESULTS: A smallpox attack managed with Q & V alone is expected to result in 7472 cases and 2160 deaths (49423 life-years lost) in one year, at a cost of $6.6 million. Mass smallpox immunization of 1- to 29-year-olds with 90% uptake is expected to cost $516 million and incur 103 deaths attributable to vaccination, but would reduce attack-related mortality to 114 deaths (5186 net life-years lost), for a savings of 44237 life-years and cost-effectiveness of $11657 per life-year saved. Mass immunization strategies for ≥1-year-olds with 50% to 90% uptake would be expected to cost $15281 to $28444 per life-year saved. The immunization strategy that minimizes loss of life-years for adults in the US population is 90% uptake among 1- to 29-year-olds. Cost-effectiveness estimates are most sensitive to the costs of vaccine administration, rates of healthcare utilization by individuals with vaccine complications, number of individuals initially infected, success of Q & V efforts, transmission rate of smallpox, and probability of a smallpox bioterror attack.
CONCLUSION: The federal government's current plan for smallpox bioterrorism does not include mass immunization. Our analysis suggests that mass immunization programs would be cost-effective and may be a feasible policy option to consider.

**STRESS TEST UTILIZATION BY GENERAL INTERNISTS IN PATIENTS ADMITTED WITH CHEST PAIN.** L. Eddy[1], H.C. Palmer[1], W.T. Shockcor[1], G. Hobbs[1], K. Evans[1]; [1]West Virginia University, Morgantown, WV *(Tracking ID #52219)*

BACKGROUND: In 1999, a protocol for admitting patients through the ED with chest pain was implemented at West Virginia University: patients with known coronary artery disease (CAD), EKG changes, or elevated cardiac enzymes were admitted to the cardiology service. All other chest pain patients were admitted to the general medicine service. Recent studies have criticized internists' ability to manage chest pain patients. In this study we identified areas for improvement for general internists regarding cardiac risk stratification and stress test utilization.
METHODS: A retrospective chart review was performed on 448 patients with chest pain admitted from June 1999 to December 2000 to the general medicine services at West Virginia University. Risk stratification and selection of cardiac stress tests were based upon a previously validated algorithm developed by Morise et al (Am J Med, 1997). Points were accrued based on the presence of known cardiac risk factors (age, gender, type of pain, hypertension, diabetes mellitus, hyperlipidemia, family history, estrogen status, tobacco use). A greater probability of CAD occurred as points increased. Stress test selection was recommended as follows: low probability - exercise EKG, intermediate probability - stress imaging, high probability - angiography.
RESULTS: The results of the study are summarized below (Table 1). The majority of patients (51%) had an intermediate probability of CAD, while 34% had a low probability score. Ordinal logistic regression analysis showed a significant (p = 0.003) association between increasing risk score and aggressiveness of stress testing. 53% of patients with an intermediate probability and 40% with a high probability received no stress test. All cause mortality, including 3 month follow up, was 1.1% Table 1 *Myocardial perfusion scan.
CONCLUSION: Internists at West Virginia University are using risk stratification to guide them in ordering stress tests. Although overall mortality was low, a large percentage of intermediate and high probability patients did not receive any stress test. This type of quality assurance study may be considered at other institutions.

**Stress Test by Risk Stratification Score**

| RISK CATEGORY | No Stress Test | Exercise Stress Test | Dobutamine Echo or MPS* | Cardiac Catheterization |
|---|---|---|---|---|
| Low probability (n = 153) | 52% | 20% | 24% | 3% |
| Intermediate probability (n = 231) | 53% | 12% | 29% | 6% |
| High probability (n = 64) | 40% | 6% | 41% | 13% |

**ASSESSMENT OF PATIENTS' PREFERENCES FOR CIGARETTE AND ALCOHOL CESSATION.** S. Flach[1], A. Diener[2]; [1]University of Iowa, Iowa City, IA; [2]Economic Analysis and Evaluation Division, Health Canada, Ottawa, Ontario, Canada *(Tracking ID #51963)*

BACKGROUND: Tobacco and alcohol cessation are important health objectives. For patients who consume both cigarettes and alcohol, it is not known if stopping tobacco or alcohol is a stronger priority, and whether preferences change over time. Therefore, we examine changes in patient preferences, or priorities, for cigarette and alcohol cessation in patients under active treatment for both tobacco and alcohol use.
METHODS: We surveyed patients addicted to cigarettes and alcohol at a VA substance abuse treatment center in 2000. Subjects ranked nine scenarios from most preferred (1) to least preferred (9) at baseline and 4–5 weeks later. The scenarios used a full factorial design with three levels of substance use (usual amount, half the usual amount, none). Scenarios described the health effects accompanying each level of tobacco and alcohol use. To infer preferences for stopping tobacco and alcohol, we used OLS to regress the ranking of each scenario's desirability on the levels of smoking and drinking (high, medium, low). A higher positive regression coefficient indicated a stronger preference for quitting; a negative regression coefficient indicated a preference for continuing use. We analyzed preferences at the group and individual levels.
RESULTS: At baseline (46 subjects) and follow-up (34 subjects), the group placed more preference on quitting alcohol than quitting cigarettes (regression coefficients of 2.23 and 2.35 for alcohol cessation and 0.51 and 0.73 for smoking cessation). Some subjects preferred smoking to quitting at baseline (11 of 46, 23.9 percent) and follow-up (8 of 34, 23.5 percent). Many people increased their preference for tobacco (10 of 34, 29.4 percent) and alcohol (12 of 34, 35.3 percent) cessation, but others decreased their preferences for tobacco (14 of 34, 41.2 percent) and alcohol (6 of 34, 17.6 percent) cessation.
CONCLUSION: Preferences for stopping alcohol were stronger than for stopping smoking. Some patients prefer continuing cigarette use to quitting. Preferences for many subjects changed over the course of a substance abuse treatment program, with no discernible pattern. Understanding the determinants of patient preferences for cigarette and alcohol cessation may improve patient outcomes.

**PROPHYLACTIC ANTHRAX VACCINATION: A COST-EFFECTIVENESS ANALYSIS.** R.M. Golub[1], B. Schmitt[1], G. Noskin[1]; [1]Northwestern University, Chicago, IL *(Tracking ID #52367)*

BACKGROUND: Until now, anthrax vaccine has had very limited use, primarily in the military. However the recent occurrence of deaths due to terrorist delivery of anthrax via the mail has raised the issue of prophylactic administration of the vaccine in populations not previously considered to be at risk. Given constraints in medical resources, prophylactic vaccination may only be appropriate in specific populations. This cost-effectiveness analysis was done to determine what combination of population characteristics would make such a program worth considering.
METHODS: We compared the marginal cost-effectiveness of three strategies related to potential anthrax exposure: (1) prophylactic vaccination, (2) no vaccination, but treat all asymptomatic exposed persons with oral antibiotics, and (3) no prophylactic vaccination, but treat all asymptomatic exposed persons with a limited vaccine course and shorter oral antibiotic course. We created a Markov model incorporating risk of anthrax exposure, risk of infection following exposure, and response to oral and intravenous antibiotics. Direct costs were measured from the societal perspective, and were derived from a combination of published drug costs, Medicare reimbursement, and local hospital costs. Probabilities of events were based on published reports, military data, and recent experience with postal worker exposure. Costs and effects were discounted 3%. Results were expressed as a marginal cost-effectiveness ratio (CER) of additional dollars per year of life gained.
RESULTS: Under all assumptions, option (2) was dominated. All other results compare option (1) prophylactic vaccination, against (3) post-exposure vaccine + antibiotics. Baseline analysis showed a CER of $120K. This result was highly sensitive to the cost of vaccine administration; for example, the CER falls to $73K if this cost is lowered from $10 to $2. One-way sensitivity analysis (SA) showed CER < $75K when annual exposure probability was greater than 2%, or infection probability after exposure was greater than 1.7%. Two-way SA provides zones indicating all of the infinite combinations of these two probabilities that result in a CER <$75K, or any other preferred CER cutoff criterion for decision making.

CONCLUSION: This analysis provides zones of probabilities of population exposure and anthrax infection in which use of prophylactic vaccination may be considered cost-effective. Public health officials, epidemiologists, policy makers, and others with expertise in risk assessment can estimate these probabilities in specific groups. The results of this study can then be applied to help inform their decision making, and thereby help to optimize resource use.

**THE COST-EFFECTIVENESS OF INTENSIVE GLUCOSE LOWERING IN ELDERLY PATIENTS WITH TYPE 2 DIABETES MELLITUS: THE IMPACT OF SELF-SELECTION.** E.S. Huang[1], L. Jin[1], M. Shook[1], M.H. Chin[1], D.O. Meltzer[1]; [1]The University of Chicago, Chicago, IL *(Tracking ID #51788)*

BACKGROUND: Preferences often vary among patients and may affect their treatment decisions, but standard cost-effectiveness analyses have never accounted for this phenomenon. Patient treatment selection may have major implications for the cost-effectiveness of medical interventions. We illustrate the impact of this self-selection on the cost-effectiveness of intensive glucose lowering in elderly patients with type 2 diabetes mellitus.
METHODS: We based our analysis on a previously described model of the cost-effectiveness of intensive glucose lowering therapy for type 2 diabetes mellitus among patients 65 years and older at the onset of disease. The model was modified to incorporate patient-specific data regarding the disutilities of treatments and complications. To obtain this data, we interviewed 150 diabetes patients over 65 years of age attending the University of Chicago clinics and used time trade-off questions to assess patient preferences. We performed separate Monte Carlo simulations using each patient's preferences in the model. Patients whose simulation results showed an increase in their Quality Adjusted Life Years (QALYs) when comparing intensive glucose lowering therapy to standard glucose lowering therapy were considered to prefer intensive therapy. To assess the impact of self-selection, we compared the cost-effectiveness ratio for the whole population to the cost-effectiveness ratio for patients who we presumed would choose intensive glucose lowering therapy.
RESULTS: For the population as a whole, intensive glucose lowering therapy was dominated by standard therapy at all ages over 65; intensive therapy was consistently more expensive than standard therapy and average QALYs were reduced by intensive therapy. When we limited the analysis to patients who would choose intensive therapy, the cost-effectiveness ratio became $21,619/QALY for the 65 year-old cohort. This effect of self-selection was maintained or even improved at older ages of disease onset.
CONCLUSION: For the full population of elderly patients in our study, intensive glucose lowering therapy was not cost-effective, and in fact was dominated by standard therapy. However, when we accounted for the possibility of self-selection, intensive therapy became highly cost-effective. These results suggest that offering all older patients intensive glucose lowering therapy may be highly cost-effective, if patients can be helped to make individualized decisions consistent with their preferences.

**DIFFERENTIATING INHALATIONAL ANTHRAX FROM INFLUENZA AND INFLUENZA-LIKE-ILLNESS.** N. Hupert[1], G.M. Bearman[1], M.A. Callahan[1], A.I. Mushlin[1]; [1]Weill Medical College of Cornell University, New York, NY *(Tracking ID #51286)*

BACKGROUND: Bioterrorism using anthrax claimed 5 lives in 2001 and remains a public health threat. A decision aid that distinguishes inhalational anthrax from influenza or other non-fatal respiratory diseases would improve mass triage strategies (by improving case-finding) and clinical management of patients who fear they have anthrax (by improving risk assessment by health care providers).
METHODS: We combined clinical information from 15 historical case reports of inhalational anthrax with published summaries of 11 contemporary cases. By comparing the prevalence of presenting signs and symptoms in these anthrax cases with data for influenza and influenza-like-illness (ILI), we calculated the positive and negative likelihood ratios (LRs) for inhalational anthax associated with each clinical finding. We combined LRs for conditionally independent variables into a sequential Bayesian analysis, allowing calculation of the posterior probability of having inhalational anthrax given a spectrum of pre-test probabilities and clinical presentations.
RESULTS: The combination of fever, dyspnea or pleuritic chest pain, nausea or vomiting, and absence of head, ear, nose or throat (HENT) symptoms was characteristic of the 26 anthrax cases. The clinical scenario of fever, HENT symptoms (sore throat, rhinorrhea, or headache), and cough without dyspnea or serious gastrointestinal complaint was characteristic of influenza and ILI. In the absence of diagnostic tests, a patient presenting with characteristic anthrax symptoms has a summary LR for inhalational anthrax of 52.6. Adding abnormal lung exam and chest radiograph, and elevated white blood cell (WBC) count raises this LR to 58,477. In contrast, a patient presenting with characteristic influenza/ILI symptoms has a summary LR for anthrax of 0.117. With the addition of normal lung exam, chest radiograph and WBC count, this LR decreases to 0.001. Dyspnea is the most discriminating symptom (LR(+) 8.38, LR(−) 0.36) and abnormal chest radiograph the most discriminating factor (LR(+) 16.0, LR(−) 0.04) in ruling in or out inhalational anthrax versus influenza/ILI.
CONCLUSION: Inhalational anthrax has a characteristic clinical presentation that can be distinguished from influenza and influenza-like-illness using presenting symptoms alone. Adding basic physical exam, radiographic, and laboratory testing powerfully raises or lowers the probability of having anthrax by multiple orders of magnitude. These results have application in the design of brief triage tools for rapid assessment in the event of future anthrax attacks and in the clinical management of patients in the aftermath of the current attack.

**THE RELIABILITY OF A PAPER-BASED INSTRUMENT TO ASSESS UTILITY BY STANDARD GAMBLE.** B. Littenberg[1], S. Partilo[1], A.L. Licata[1], M.W. Kattan[2]; [1]University of Vermont, Burlington, VT; [2]Sloan-Kettering Cancer Center, New York, NY *(Tracking ID #52214)*

BACKGROUND: Standard gamble exercises are often the preferred method for eliciting a patient's utility for a particular health state for cost-effectiveness or other policy analyses. However, currently available methods require access to either a trained interviewer or a specialized computer program. PaperGamble (PG) is a paper questionnaire that has been shown to accurately represent standard gambles elicited by computer. We sought to demonstrate its test-retest reliability.
METHODS: We enrolled a sample of 77 clinically stable outpatients and administered PG by mail two weeks before their scheduled dermatology office visit and again in the waiting room before seeing the physician. We elicited their utility for the imagined health states of monocular and total blindness as well as for their current skin health. We also collected clinical and demographic data, the Dermatology Life Quality Index (DLQI), and the SF-12. We calculated reliability as the coefficient of variation of the difference in score at the two administrations (CV) and as the coefficient of concordance (rho). Patients who gave uninterpretable utilities or ranked binocular blindness as higher (more preferred) than monocular blindness were considered instrument failures.
RESULTS: The 20 males and 57 females were ages 19 – 73 (median 50) and had actinic keratoses (22%), melanoma (16%), non-melanoma skin cancer (10%), nevi (9%), acne (8%), psoriasis (6%), and other conditions (29%). No therapeutic maneuvers were changed between test and re-test. 23% were using prescription medications, 14% over-the-counter remedies and 62% reported no therapy. 73% reported no change in their condition between tests and only 1 patient reported more than "a little" change. 6 patients misordered the blindness questions and 2 patients gave uninterpretable PG responses. The 10.4% failure rate is slightly larger than the experience with computer standard gambles. The mean utility (0 = death, 1 = perfect skin) for their current skin condition was .946 at baseline and .945 at follow-up, a clinically insignificant difference. The mean difference was −.001 (95%CI: −.009 to + .010; p = 0.85) with a CV of 0.6% and rho = .973. The reliability of PG was significantly better than the Physical Composite Summary score of the SF-12 (CV = 8.2%; rho = .763) and the disease-specific DLQI (CV = 9.1%; rho = .919).
CONCLUSION: PG has acceptable reliability that is superior to other quality of life measures. It offers a feasible and reliable means of assessing standard gamble utilities at low cost on large samples of patients.

**COST-EFFECTIVENESS OF LUNG CANCER SCREENING WITH COMPUTERIZED TOMOGRAPHY.** P. Mahadevia[1], J. Eng[1], K. Frick[1], L. Fleisher[1], S. Goodman[1], N. Powe[1]; [1]Johns Hopkins University, Baltimore, MD *(Tracking ID #51288)*

BACKGROUND: Given the incomplete success of smoking cessation for primary prevention of lung cancer, some advocate secondary prevention by screening with spiral computerized tomography (CT). What are the potential benefits, harms and cost-effectiveness of doing so?
METHODS: We simulated screening using a decision model for 3 risk cohorts of 60 year-old heavy smokers; those continuing smoking (CS), those permanently quitting at screening (QS) and former smokers, permanently quitting 5 years prior (FS). Screening was annual until age 80 with follow-up until age 100. We defined a screening strategy costing less than $50,000 per quality-adjusted life years saved (QALYs) as highly cost-effective.
RESULTS: Annual CT screening cost $49,700 per QALYs for the CS cohort, $101,200 per QALYs for the QS cohort and $153,700 for the FS cohort. Screening added 0.13 QALYs to the CS cohort. Similar gains in QALYs can be achieved by smoking cessation if 6% of smokers quit at age 60 or 4% quit at age 55. Over 20 years, screening 100,000 CS cohort members would result in 1,463,899 exams with 67, 097 indeterminate exams requiring follow-up surveillance. There would 4,862 additional invasive tests and 2,826 non-lung cancer diagnoses (false positives). 3 additional deaths would occur from invasive testing and 200 from surgery. The CS cohort reaches the highly cost-effectiveness threshold after 40 years of follow-up.
CONCLUSION: If CT screening is proven to be effective, it is unlikely to be highly cost-effective for everyone. Even for the highest at risk, harms from screening are significant. Societal investments in smoking cessation are likely to be more beneficial.

**Base case analysis for CS,QS and FS Cohorts**

| | Average Cost Consumed | Additional Cost From Screening | Average QALY Lived | Additional QALYs From Screening | Average LY Lived | Additional LYs From Screening | Incremental Cost Per QALYs | Incremental Cost Per LYs |
|---|---|---|---|---|---|---|---|---|
| CS Cohort | | | | | | | | |
| No Screen | $5,200 | 13.00 | | | 13.09 | | | |
| CT Screen | $11,500 | $6,300 | 13.13 | 0.13 | 13.23 | 0.15 | $49,700 | $43,500 |
| QS Cohort | | | | | | | | |
| No Screen | $3,500 | | 15.21 | | 15.27 | | | |
| CT Screen | $9,800 | $6,300 | 15.27 | 0.06 | 15.35 | 0.08 | $101,200 | $78,100 |
| FS Cohort | | | | | | | | |
| No Screen | $2,700 | | 16.43 | | 16.48 | | | |
| CT Screen | $8,900 | $6,200 | 16.47 | 0.04 | 16.53 | 0.06 | $153,700 | $108,800 |

**DECISION AND COST-EFFECTIVENESS ANALYSIS FOR THE DIAGNOSIS OF ACUTE CARDIAC ISCHEMIA IN THE.** C.E. Milch[1], E.M. Balk[1], D. Salem[1], J. Lau[1]; [1]New England Medical Center, Boston, MA *(Tracking ID #51532)*

BACKGROUND: Many tests are available to emergency department (ED) physicians to help in detecting patients with acute cardiac ischemia (ACI). The more accurate diagnostic tests are also more costly, so an explicit analysis of the trade-off between cost and effectiveness of alternative tests may assist ED physicians in their choice of diagnostic tests. To address these issues, we developed a decision analytic model that assesses outcomes and costs for different diagnostic tests for patients presenting to the ED with signs and symptoms suggestive of ACI. We evaluated incremental cost-effectiveness of 16 individual technologies and four combinations of technologies applied to ED patients with possible ACI.
METHODS: We evaluated the following diagnostic strategies: single and serial CK-MB, troponin T, and myoglobin, acute cardiac ischemia time-insensitive predictive instrument (ACI-TIPI), Goldman chest pain protocol, exercise ECG testing (ETT), rest and stress echocardiography, and rest sestamibi imaging. Diagnostic test effectiveness was defined as

appropriate triage (hospitalization) for patients with ACI and values were based on published data and meta-analyses of diagnostic performance in the ED. Total costs were nationwide median reimbursements from third-party payers for diagnostic tests, hospitalization and outpatient evaluation. Time horizon was 30 days. We considered two populations of ED patients: 1) All patients presenting to the ED with possible ACI, and 2) low-risk patients without clinically obvious myocardial infarction in whom sestamibi and stress tests could be safely considered.
RESULTS: Biomarkers were least costly and least effective for diagnosing ACI in the ED and leading to appropriate triage; imaging and stress testing were more costly but more effective. Among general ED patients, serial troponin T had an incremental cost-effectiveness (CE) of $1,987 per appropriately triaged patient with ACI, but missed 42% of patients with ACI. ACI-TIPI was the most effective but had an incremental CE of $7,415 per appropriate triage compared with serial troponin T. Among low-risk patients, ETT and sestamibi imaging were the most effective diagnostic tests. ETT was nearly $700 per patient less costly than sestamibi imaging and also had a relatively low incremental CE of $2,015 compared with single troponin T. Although troponin T had a lower CE, it would lead to 65% fewer appropriate triages than ETT. Increasing the prevalence (likelihood) of ACI did not substantially change the CE rankings of the strategies but did reduce the incremental cost-effectiveness ratios.
CONCLUSION: ACI-TIPI in general ED patients, and ETT and sestamibi imaging among low-risk ED patients are very effective for detecting ACI. ACI-TIPI and ETT are cost-efficient options for the detection of ACI in the ED. The cost-effectiveness and safety of sestamibi imaging and ETT in a population of ED patients with higher risks for ACI need further study.

**SIGNIFICANCE OF ECONOMIC AND PATIENT REPORTED OUTCOMES IN ASSESSING TREATMENT EFFICACY.** C. Mullins[1], F. Shaya[1], J. Ahn[1], G. Corcoran[2], S. Merchant[2], C. Pause[2], D. Church[2]; [1]University of MD, Baltimore, MD; [2]Bayer Corporation, West Haven, CT *(Tracking ID #51580)*

BACKGROUND: Acute bacterial sinusitis (ABS) places substantial burden on patients, providers, employers and healthcare systems. Past comparative clinical trials focus primarily on clinician-assessed outcomes, with comparator drugs usually demonstrating equivalency. The current study moves beyond the familiar clinical indicators, and examines a more holistic approach to evaluating health outcomes and assessing treatment cost effectiveness.
METHODS: In this open-label, multicenter, randomized trial, patients with ABS received treatment for 10 days with: moxifloxacin (MXF) 400 mg PO qD, levofloxacin (LEV) 500 mg PO qD, or amoxicillin clavulanate (AMC) 875/125 mg PO BID. Second prescriptions, associated with sinusitis or treatment side effects, measured the effect of therapy on "practice time use," during and 14-days after therapy. Sinusitis symptom improvement was assessed on a daily basis using the Sino-Nasal Outcomes Test-16 (SNOT-16), and work productivity through a series of questions via a daily telephone call.
RESULTS: For 792 efficacy-valid patients, no significant differences were found between treatment groups in terms of numbers of second prescriptions for the same indication, rate of symptom relief, and mean-hours lost from work. A post hoc exploratory analysis was performed. While no significant differences in the total time spent on follow-up consults between MXF and AMC and LEV and AMC were noted, adjusted time spent on follow-up consults between the combined quinolones (3.98 minutes) and AMC (5.98 minutes) were significantly different ($P < 0.05$), suggesting that the use of quinolones may reduce time spent on follow-up consultations.
CONCLUSION: Capturing the breadth and depth of relevant clinical, economic and patient reported outcomes allows a clearer understanding of disease burden and treatment efficacy. While no significant differences were identified between the predefined efficacy variables in this study, a post hoc exploratory analysis suggested that the use of MXF or LEV, as compared to AMC, in the treatment of ABS may result in significant benefits to payers, the healthcare team and patients in terms of cost savings and overall patient satisfaction.

**RESULTS OF A THREE-YEAR HOSPITALIST INTERVENTION.** H. Palmer[1], N. Armistead[1], S. Manivannan[1], W.T. Shockcor[1], G. Hobbs[1], K. Evans[1]; [1]West Virginia University, Morgantown, WV *(Tracking ID #52109)*

BACKGROUND: Hospitalist based services have been shown to reduce average inpatient cost and length of stay in a number of one year studies. What is not known is whether hospitalists are able to sustain these cost reductions over time. We looked at the results from a three year hospitalist program compared with two comparison groups in an academic center.
METHODS: A hospitalist service was implemented in 1998 and followed over three years compared with two control groups, one staffed by general internists and one staffed by specialists. Team structure was identical except that the hospitalist service had a nurse discharge planner assigned to the team during the first year but not during years 2 and 3. Hospitalist attendings had no scheduled outpatient responsibilities during their ward time during the three year period, however, generalists and specialist attendings maintained two to three one-half day clinics per week. We followed the teams over three years looking at average direct costs and length of stay (LOS). A multi-way analysis of variance was used to adjust for case mix index, age, gender and payor status. Because of the number of hospitalists was small ($n = 4$), we adjusted for a clustering effect by performing a mixed-effects split plot analysis of variance using restricted maximum likelihood analysis. In hospital mortality rates were measured over the three years for the three services as a quality control.
RESULTS: As shown in the table below, the hospitalist service consistently had the lowest average direct cost and LOS compared with the two control groups. The direct costs was influenced by type of service ($p < .0001$), year ($p < .0001$), and service-year interaction ($p<.0001$). The LOS was influenced by the type of service only ($p < .0001$). There was no clustering effect observed among the hospitalists ($p = 1$). Mortality rates were 3.3% for the hospitalists, 2.9% for generalists and 5.1% for the specialists ($p = .0002$ for group). Table 1
CONCLUSION: Despite the loss of a nurse discharge planner, the hospitalist service was consistently the most cost effective relative to the 2 control groups. However, the difference among the groups in average cost decreased over time. This effect was likely attributable to a Hawthorne effect with increased emphasis towards cost reduction on all services. Mortality rates were not compromised on the hospitalist service.

| Service (n) | Parameter | 1998 – 99 | 1999 – 2000 | 2000 – 01 |
|---|---|---|---|---|
| Hospitalist | Cost ($) | 3149 ± 6999 | 3735 ± 7072 | 3208 ± 6255 |
| 3777 | LOS (days) | 5.8 ± 7.9 | 6.3 ± 7.3 | 6.1 ± 7.7 |
| Generalist | Cost ($) | 3523 ± 7837 | 3924 ± 6615 | 3325 ± 6018 |
| 2378 | LOS (days) | 6.8 ± 9.8 | 6.7 ± 7.6 | 6.8 ± 9.9 |
| Specialist | Cost ($) | 3872 ± 6625 | 4953 ± 20275 | 3657 ± 8097 |
| 1869 | LOS (days) | 7.3 ± 8.6 | 7.0 ± 9.3 | 7.1 ± 9.3 |

**ATTENTION TO CARDIOVASCULAR RISK FACTOR MODIFICATION IN PATIENTS ADMITTED WITH CHEST PAIN TO A GENERAL INTERNAL MEDICINE SERVICE.** H. Palmer[1], L. Eddy[1], W.T. Shockcor[1], G. Hobbs[1], K. Evans[1]; [1]West Virginia University, Morgantown, WV *(Tracking ID #52195)*

BACKGROUND: Low risk patients who present with chest pain are commonly admitted to general internal medicine services. Though most of these patients rule out for myocardial infarction, this is an excellent time to address risk factor modification particularly in patients with intermediate to high risk for cardiovascular disease. We looked at whether modifiable cardiovascular risk factors are being addressed in patients admitted with chest pain to our general internal medicine services.
METHODS: We performed a retrospective chart review of 451 patients admitted with chest pain to the general internal medicine services during the 1999 – 2001 academic year. We measured percentage of patients with hypertension that were treated, percentage of patients with diabetes that were treated, percentage of patients that were current smokers who were counseled regarding smoking cessation, percentage of patients with hypercholesterolemia who were treated with drug therapy and percentage of patients who had their lipid profiles checked either during the present hospitalization or within the six months prior to admission. Chi square analysis was used to detect any differences in the rates of addressing these risk factors.
RESULTS: 46% of the patients had hypertension of which 91% were discharged with drug therapy. 19% of the patients had diabetes of which 95% were discharged with drug therapy. 34% of the patients were current smokers of which 24% had documented smoking cessation counseling prior to discharge. 29% of the patients had hypercholesterolemia of which 57% were treated with drug therapy. Of the 129 patients discharged with a diagnosis of hypercholesterolemia, 78% either had their lipids checked during their hospitalization or within the previous six months. Of the 322 patients discharged without the diagnosis of hypercholesterolemia, 44% either had their lipids checked during their hospitalization or within the previous six months. A significant difference was observed between rates of addressing hypercholesterolemia and smoking cessation versus diabetes and hypertension (Chi square = 219, $p < .0001$).
CONCLUSION: At this single site study, general internal medicine services addressed the risk factors of hypertension and diabetes in most patients presenting with chest pain. However, most patients that were current smokers did not receive smoking cessation counseling. Also, cholesterol status was frequently not addressed in this patient population. This type of study may be considered at other institutions to evaluate quality assurance and improvement.

**DEVELOPMENT OF A COST EFFECTIVE AUTOMATED SCORING SYSTEM FOR COMPUTERIZED CLINICAL VIGNETTES.** J.W. Peabody[1], J. Luck[2], B. Levis[3], O. Yeretsian[3]; [1]Institute for Global Health/UCSF/SF VAMC, San Francisco, CA; [2]UCLA, Los Angeles, CA; [3]VA Medical Center, San Francisco, CA *(Tracking ID #51293)*

BACKGROUND: Computerized clinical vignettes are known to be a valid, low cost, case-mix adjusted measure of the quality of physician practice. For computerized vignettes to realize their full cost efficiency, an automated scoring system is needed to replace the labor intensive taks of manual scoring currently done by a trained abstractor.
METHODS: We administered computerized clinical vignettes to 120 randomly selected primary care physicians. The vignettes were scored in two ways. First, scoring was done by a trained abstractor who evaluated approximately 65 explicit, evidence-based criteria. Second, scoring was done by an automated scoring algorithm, which examined text response, using exactly the same criteria. To validate the scoring algorithm, only half of the completed vignettes were used to develop the initial patterns; later, the other half were used to test the scoring engine.
RESULTS: Agreement between the trained abstractor and the algorithm ranged from 86 per cent to 94 per cent (mean value = 90%). Agreement of 85 per cent or greater was observed for 75 per cent of individual criteria scored. Each manually scored case required approximately 1 hour. The total direct cost of manual scoring is estimated to be $20,835. By contrast, the automated scoring system required less than 2 minutes for all cases. The total development cost was $20,000; the marginal cost for (future) scoring is negligible.
CONCLUSION: Automated scoring of computerized vignettes used to measure quality of care can match scoring by a trained abstractor with 90% accuracy. Automated scoring dramatically reduces costs of scoring and provides a rapid method for evaluating quality. A system of validated vignette and automated scoring can be a cost efective and reliable way to evaluate quality and the impact of policy on clinical practice.

**COST-EFFECTIVENESS ANALYSES OF DIABETES MANAGEMENT: HOW TO MAKE THEM MORE CLINICALLY USEFUL.** M. Safford[1], L. Pogach[2], S. Roman[3], L. Russell[4]; [1]University of Medicine and Dentistry of New Jersey, Newark, NJ; [2]VHA, East Orange, NJ; [3]CMS, Baltimore, MD; [4]Rutgers University, New Brunswick, NJ *(Tracking ID #52201)*

BACKGROUND: Recent guidelines recommend lower goals for blood pressure, cholesterol, and glycemic control in individuals with type 2 diabetes to prevent cardiovascular events in

addition to microvascular complications. Multiple interventions are often required and many patients cannot achieve targets for all conditions. Clinicians need information on how best to focus efforts to improve overall health for people with diabetes. Ongoing studies of diabetes management and cardiovascular risk will provide necessary clinical data; many plan to conduct cost-effectiveness analyses (CEAs). They represent an important opportunity to produce information that clinicians badly need.
METHODS: We formally reviewed the literature for CEAs of interventions for glycemic, blood pressure, or cholesterol control in type 2 diabetes. Drawing on this review, clinical experience, and the work of the Panel on Cost-Effectiveness in Health and Medicine, we offer recommendations for future CEAs.
RESULTS: Thirteen published CEAs met inclusion criteria. Although many are excellent individually, they are based on trials that did not address newer targets, they do not consider incremental benefits or interactions among treatments, and methodological differences invalidate comparisons among them.
CONCLUSION: Future CEAs should model incremental progress toward treatment goals, standardize the comprehensive payer perspective, include adverse effects of treatment, use micro-costing to measure resources, and include separate analyses for clinically important subgroups. Incorporating these recommendations would maximize usefulness of CEAs for clinical and policy decision-making about this complex disease.

**ECHOCARDIOGRAPHY IN THE MANAGEMENT OF STROKE: SYSTEMATIC REVIEW AND COST-UTILITY ANALYSIS.** S. Saha[1], R.T. Meenan[2], R. Chou[1], K. Swarztrauber[1], K.P. Krages[1], M. O'Keeffe-Rosetti[2], M. Mcdonagh[2], B.K. Chan[1], M.C. Hornbrook[2], M. Helfand[1]; [1]Evidence-Based Practice Center, Oregon Health & Science University, Portland, OR; [2]Kaiser Permanente Center for Health Research, Portland, OR *(Tracking ID #51163)*

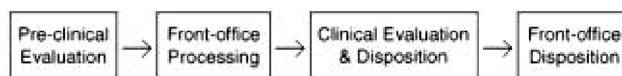
BACKGROUND: Echocardiographic procedures, both transthoracic (TTE) and trans-esophageal (TEE), are commonly obtained in patients presenting with stroke, to detect treatable sources of cardioembolism, particularly intracardiac thrombi. We sought to determine the effectiveness and cost-effectiveness of this practice.
METHODS: We used comprehensive search strategies to identify studies addressing the yield and accuracy of TTE and TEE in detecting intracardiac thrombi, the harms associated with TEE, and the efficacy and safety of anticoagulation in reducing the risk of recurrent stroke among patients with intracardiac thrombus. Studies were critically appraised and abstracted using uniform criteria, and meta-analytic methods were applied to pool data where appropriate. We excluded data from patients with atrial fibrillation (AF), since anticoagulation is generally indicated in stroke patients with AF, regardless of echocardiographic findings. We used semi-Markov decision modeling to assess the cost-effectiveness of TTE and TEE—used either alone or in sequence, either universally or only in patients with heart disease—for a hypothetical cohort of 65 year-old white men with stroke.
RESULTS: Of 2,283 citations retrieved, 73 articles met criteria for inclusion. Echocardiography identified thrombus in approximately 2% of unselected patients with stroke (without AF). Thrombus prevalence in patients with heart disease was highly variable but estimated at 5%. Pooled estimates of sensitivity and specificity for TTE were 42% and 99% for left atrial thrombus (LAT), and 77% and 95% for left ventricular thrombus (LVT). For TEE, sensitivity and specificity were 93% and 97% for LAT; we did not identify any studies of TEE accuracy in detecting LVT. Rates of major complications and death in patients undergoing TEE were 0.7% and 0.014%. We found insufficient evidence regarding the efficacy of anticoagulation in reducing stroke risk in patients with intracardiac thrombus. When we assumed that anticoagulation reduced the relative risk of recurrent stroke by 33% over one year as compared to aspirin, performing TEE alone in patients with heart disease was the most cost-effective testing strategy, at $200,000 per quality-adjusted life year (QALY) saved. The cost-effectiveness of TEE was less than $50,000 per QALY if thrombus prevalence exceeded 20%, or if the relative risk reduction with anticoagulation exceeded 60% and was assumed to be lifelong.
CONCLUSION: The benefits of echocardiography in patients with stroke are uncertain. Under most plausible assumptions, the cost-effectiveness of this application of echocardiography compares unfavorably with other commonly endorsed health care interventions.

**IMPACT OF UNDERLYING HEALTH STATUS ON THE COST EFFECTIVENESS OF INITIAL ANTIBIOTIC THERAPY FOR PATIENTS PRESENTING WITH ACUTE EXACERBATION OF CHRONIC BRONCHITIS.** S.K. Saint[1], K. Flaherty[2], F. Martinez[2], P. Abrahamse[2], A.M. Fendrick[2]; [1]Ann Arbor VAMC and University of Michigan, Ann Arbor, MI; [2]University of Michigan, Ann Arbor, MI *(Tracking ID #51836)*

BACKGROUND: Most evidence-based guidelines recommend antibiotic therapy to enhance the resolution of an acute exacerbation of chronic bronchitis (AECB). Available antibiotics differ in eradication rates of specific bacteria, effectiveness in resolving symptoms, duration of therapy, side effects, and purchase price. Concerns over bacterial resistance patterns, antibiotic expenditures, and missed opportunity for cure warrant a rigorous analysis of the clinical and economic effects of initial antibiotic choice in AECB patients with varying levels of co-morbidity. Our objective was to use decision analysis to estimate the cost-effectiveness of different initial antibiotics for individuals with COPD experiencing an AECB.
METHODS: A Markov model simulating the natural history of AECB was constructed to assess treatment effects of different antibiotics. Individuals progress through different clinical states depending on patient-specific attributes and treatment effects. A structured literature synthesis, supplemented by expert opinion was used to derive model inputs. Two separate COPD patient cohorts, LOW-risk [few co-morbidities, age < 70, < 4 AECB episodes in the past year], and HIGH-risk were evaluated. Patients enter the simulation experiencing an AECB for which they receive an antibiotic that is assigned a cost and a probability of resolving symptoms (Generic [$7, cure rate - LOW 83%, HIGH 67%], Brand [$75, cure rate - LOW 87%, HIGH 70%]). Individuals may need additional visits, be treated with multiple antibiotic courses, and/or require hospitalization before being cured.
RESULTS: Total cost per AECB episode was similar in both cohorts irrespective of initial antibiotic used (LOW - $455 Generic, $463 Brand; HIGH - $1,404 Generic, $1,407 Brand) The incremental cost-effectiveness of using Brand initially for LOW-risk patients was $1394 per hospitalization avoided and $276,296 per life saved. For HIGH-risk COPD patients, initial use of Brand is cost-effective ($431 per hospitalization avoided and $10,229 per life saved) based on current benchmark incremental cost-effectiveness ratios.
CONCLUSION: Underlying health status appears to be an important factor for determining the cost-effectiveness of initial antibiotic choice for treating a COPD patient experiencing an AECB. For high-risk COPD patients, superior cure rates resulting in fewer return visits and hospitalizations appear to make initial Brand agents a cost-effective choice, despite the initial additional antibiotic cost. The decision to use more expensive, broad spectrum agents for those at low risk for a complicated AECB course should be driven by patient-specific factors, especially life expectancy.

**A SYSTEMS ANALYSIS APPROACH TO QUALITY IMPROVEMENT IN RESIDENT TEACHING CLINICS.** D.D. Semian[1], E.J. Gertner[1]; [1]Lehigh Valley Hospital, Allentown, PA *(Tracking ID #51808)*

BACKGROUND: Resident teaching clinics have long remained a challenging financial entity for health care institutions as they often serve an indigent population that is largely uninsured or insured through Medicaid. With many states now implementing plans that involve converting previously state-insured patients to managed care plans, there are new constraints on delivering high quality care while maintaining at least the same level of financial viability and educational opportunity within the resident clinics. In order to anticipate the impact of these changes and prepare for both the educational and financial results, we used systems analysis to develop a flow chart of our clinical workflow to ensure the future successful management of our resident clinic.
METHODS: System analysis, a strategy long employed in the business world for performance improvement, was used to study the workflow of our resident clinic. This approach first involved defining the individual steps of care delivery and then determining the different possible outcomes of each step. The steps were then linked to the physical and human resources of our clinic in varying combinations to determine the most effective allocation of these resources.
RESULTS: The figure below is an abbreviated visual representation of the workflow within our resident clinic. Each of the four major stages of care delivery carries with it specific requirements that are necessary to progress from one stage to the next. These individual requirements were identified and analyzed to develop an overall strategy for systems improvement. The flow chart allowed for easy identification of areas of clinical activity in need of performance improvement. Continuous quality improvement (CQI) activities will measure the impact of this approach on patient flow, patient volume, waiting times, and patient and resident satisfaction.
CONCLUSION: By closely examining the workflow of a resident teaching clinic, there are several potential systematic changes that can help maintain the same high quality of care delivery without compromising its educational mission or financial position in a managed care environment. This systems analysis tool can be modified for use in any resident teaching clinic facing these challenges.




Resident clinic flow chart.

**TEACHING EFFICIENCY: COST EFFECTIVE PATIENT CARE ON A GENERAL MEDICINE TEACHING SERVICE.** C.Y. Todd[1], B. Dawson[2], R.C. Bussing[1], D.E. Steward, J. Gruwell[3]; [1]Southern Illinois University, Springfield, IL; [2]Southern Illinois University School of Medicine, Springfield, IL; [3]Memorial Medical Center, Springfield, IL *(Tracking ID #47530)*

BACKGROUND: General Internists with academic preactices are held to the same efficiency standards as those with private practices. Inpatient teaching services with residents and students present are commonly thought to be less cost efficient compared to non-teaching services. In 1996, we re-designed out teaching service in a community teaching hospital, with a goal of providing efficient patient care. Our objectives in this study were to compare inpatient cost allocations for academic and non-academic internists that admit patients to the same hospital, and to assess changes in these measures over time.
METHODS: Patient data on readmission rates and cost allocations were extracted from the Memorial Medial Center computerized Explore database. Areas of analysis included length of stay and readmission rates, total costs, and lab, pharmacy and imaging costs. Data was collected for the 1996, 1998 and 1999 academic years. Patients on the teaching service were compared with DRG and severity score matched patients admitted to Memorial Medical Center during the same time periods for private practitioners.
RESULTS: Teaching Service versus Private Internists for the years 1996, 1998, 1999.
Total Number of Teaching Patients: 859, 852, 839
Length of stay (days): 2.6 shorter, 0.5 shorter, 0.2 longer
Total mean cost difference: $2561 less, $2179 less, $1245 less
Laboratory mean cost difference: $117 less, $11 less, $56 more
Pharmacy mean cost difference: $298 less, $170 less, $161 less
Imaging mean cost difference: $76 less, $57 less, $63 less
Readmission rate: 1.0% higher, 0.5% higher, no data
CONCLUSION: Our study shows that inpatients on our academic internal medicine service received care at a lower cost than similar inpatients managed by private practitioners at the same hospital. These changes persist but diminish longitudinally, perhaps due to increasing pressure on private physicians to improve cost efficiency. This study shows that academic internists can provide an environment in which residents and students learn to provide cost efficient care.

**THE IMPACT OF COLORECTAL CANCER SCREENING RECOMMENDATIONS ON COLONOSCOPY DEMAND.** S. Vijan[1], J. Inadomi[1], A.M. Fendrick[1], T.P. Hofer[1], R.A. Hayward[1]; [1]University of Michigan, Ann Arbor, MI *(Tracking ID #51453)*

BACKGROUND: Several diagnostic methods are recommended to screen for colorectal cancer. The relative appeal of colonoscopy has been enhanced due to superior diagnostic capabilities, celebrity promotional campaigns and insurance coverage. However, an increase in colonoscopy demand raises concerns whether there are enough endoscopists to perform the examinations, particularly if colonoscopy is the predominant screening method. Our objectives were to: 1) estimate colonoscopy demand under various screening strategies, and 2) project endoscopist manpower for these strategies under a number of colonoscopy workload scenarios.
METHODS: US census data were entered into a previously published Markov model of the natural history of colorectal cancer to estimate colonoscopy demand in a number of plausible screening strategies. To estimate the number of endoscopists necessary to meet the colonoscopy demand, current colonoscopy rates from a national endoscopy database were applied to colonoscopy demand as projected by the model. Sensitivity analyses examined the effect of screening adherence on supply and demand.
RESULTS: The number of colonoscopies with different screening options is shown in the table. Sigmoidoscopy with fecal-occult blood testing also requires a lifetime average of 4.54 sigmoidoscopies per person, or 11.4 million in the US annually. To meet colonoscopy demand, the average gastroenterologist would have to perform an incremental 28 to 60 colonoscopies per month (current screening-related rate = 10 per month). Alternatively, the health-care system needs to train between 600 and 3500 endoscopists that are wholly dedicated to screening, depending on the selected strategy and the number of endoscopies done on a monthly basis.
CONCLUSION: Improving adherence with colorectal cancer screening will lead to substantial demand for colonoscopy. The demand will be increased regardless of screening strategy. The health care system will likely need to develop systems for training dedicated endoscopists in order to provide population-wide screening. The costs of establishing this infrastructure should be considered in cost-effectiveness analyses.

**Colonoscopy Demand**

| Strategy | Colonoscopies Per Person (Lifetime) | Annual Colonoscopies in US |
|---|---|---|
| Colon at age 65 | 1.273 | 3,022,564 |
| Colon at age 55 | 1.553 | 4,144,043 |
| Colon at age 50 | 1.544 | 4,880,237 |
| Sig/FOBT | 1.666 | 4,455,936 |
| Colon at ages 50 and 60 | 2.638 | 7,502,908 |

# DISEASE PREVENTION

**DIRECT OBSERVATION OF PHYSICIAN COUNSELING ON DIETARY HABITS AND EXERCISE IN RURAL PRIMARY CARE PRACTICES.** N.A. Anis[1], R.E. Lee[2], E.E. Ellerbeck[2], N. Nazir[2], J.S. Ahluwalia[2]; [1]University of Missouri-Kansas City, Kansas City, MO; [2]University of Kansas Medical Center, Kansas City, KS *(Tracking ID #51261)*

BACKGROUND: To document the frequency and correlates of physicians' counseling on dietary habits and exercise in private clinical practices.
METHODS: Trained medical students observed 4344 patient visits in 38 family physician offices in rural Kansas. Students identified physician, office and patient characteristics. For each patient observed students recorded whether physicians counseled patients on dietary habits and/or exercise and who (physicians or patients) initiated the counseling.
RESULTS: Counseling rates ranged from 0% in some offices to 55% in others. Physicians counseled patients on dietary habits in 25% of patient visits and exercise in 20% of visits. Physicians counseled new patients 30% more often than they counseled established ones ($p < 0.05$). Diet counseling was associated with having diet and exercise brochures in physician's office ($p < 0.05$), but exercise counseling was unrelated to brochures. When counseling occured, physicians (rather than patients) initiated both diet and exercise counseling 61% of the time. Counseling for dietary habits was associated with counseling for exercise ($p < 0.05$), suggesting that some physicians may be more likely to give preventive counseling. Counseling was not associated with physicians' age, years in practice, and number of patients seen per week.
CONCLUSION: The results show wide variation in counseling practices, largely unaffected by physician characteristics. Results suggest that physician counseling protocols or standards need to be developed and promoted. Intervention strategies are needed to improve the consistency of physician preventive counseling practices.

**DECREASING ANXIETY AFTER FALSE-POSITIVE MAMMOGRAMS: A CONTROLLED TRIAL.** M.B. Barton[1], S. Moore[1], D.S. Morley[1], J.D. Allen[2], K.P. Kleinman[1], K.E. Emmons[2], S.W. Fletcher[1]; [1]Harvard Medical School and Harvard Pilgrim Health Care, Boston, MA; [2]Dana-Farber Cancer Institute, Boston, MA *(Tracking ID #51603)*

BACKGROUND: False-positive mammograms have been shown to cause anxiety in women. We performed a controlled trial to determine the effect of a radiology system intervention (immediate versus delayed reading of mammograms) and a randomized educational intervention on women's psychological status after a false-positive or a normal mammogram.
METHODS: Eligible women aged 39 years and older were recruited from seven mammography sites. The educational intervention (consisting of a 9-minute videotape and a pamphlet) was administered randomly, in month-long blocks, at each site. Immediate reading of mammograms occurred at six of the seven sites on a part-time schedule. Mammogram results were collected from automated clinical data, and subjects were selected for further inclusion in the study stratified by mammogram result. Women diagnosed with cancer were excluded. Psychological outcomes [Impact of Events Scale (IES) and Hopkins Symptom Checklist Anxiety and Depression scales (HSCL-A and HSCL-D)] were assessed in structured telephone interviews performed three weeks after the mammogram in all women with false-positive and a random sample of women with normal mammograms.
RESULTS: 8854 women enrolled in the study. 2880 were selected for telephone interviews (1763 with false-positive and 1117 with normal mammograms). Interviews were completed with 1441 (82%) women with false-positive mammograms and 951 (85%) women with normal results. Women with false-positive mammograms had higher scores on both the IES and the HSCL-A than women with normal mammograms (IES mean 4.98 versus 1.82, $p < .0001$; HSCL-A 1.14 versus 1.11, $p = .002$). Women with false-positive mammograms who received immediate reading of mammograms had lower scores on the IES three weeks after the mammogram than those with delayed reading of mammograms (4.42 versus 5.53, $p = .02$); scores on the HSCL were not significantly different. The educational intervention was not associated with any difference in IES or HSCL scores. In a linear regression analysis controlling for patient characteristics limited to women with false-positive mammograms and positive IES scores, the radiology intervention was independently associated with lower scores ($p = .015$) indicating less anxiety.
CONCLUSION: Immediate radiology reading of screening mammograms was associated with lower levels of anxiety among women with false-positive mammogram results. An educational intervention designed to decrease anxiety did not have a measurable effect on women's anxiety levels in this study.

**AT-RISK ALCOHOL USE: ASSOCIATION WITH OTHER HEALTH HABITS.** N. Bertholet[1], J. Leutwyler[1], I. Chossis[1], F. Macheret Christe[1], R. Gammeter[1], J. Besson[1], A. Pecoud[2], J.B. Daeppen[1]; [1]Alcohol Treatment Center, Lausanne, Switzerland; [2]University Primary Care Center, Lausanne, Switzerland *(Tracking ID #50979)*

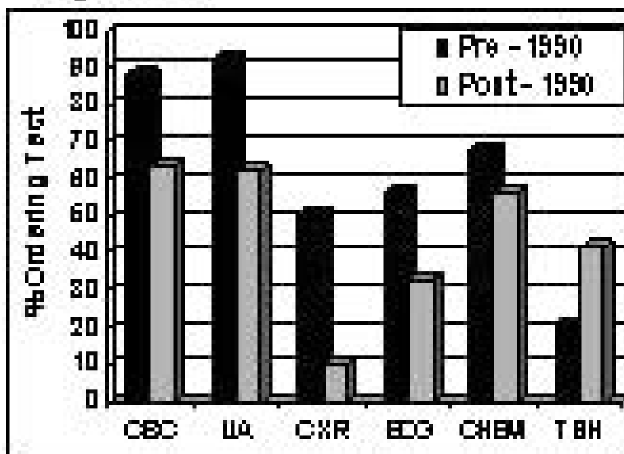
BACKGROUND: At-risk alcohol use, as defined by the Word Health Organization, increases morbidity and mortality. This study describes the diet, physical exercise, driving habits, immunization history, and tobacco use of at-risk drinkers, in order to help primary care physicians identify and counsel patients about alcohol use and other health habits.
METHODS: A self-administered questionnaire containing the Alcohol Use Disorders Identification Test (AUDIT) and items about health habits was completed by 495 patients in the waiting room of a university primary care center. Forty-nine (9.9%) patients with alcohol dependence (AUDIT≥10) were excluded, and the characteristics of 106 (21.4%) at-risk drinkers were compared to those of the remaining 340 (68.7%) patients who were abstinent or used alcohol moderately.
RESULTS: Compared to abstinent or moderate-use patients, at-risk drinkers were less likely to have modified their diet to loose weight or to achieve better health over the last 12-months (26.9% vs. 43.8%, chi-square = 9.49, $p < .01$). No group differences were found in the proportion of individuals who exercised weekly, who considered themselves in good health, nor had at least one immunization over the last 10 years. At-risk drinkers were less likely than abstainers or moderate drinkers to use seat belts regularly (79.5% vs. 88.9%, chi-square = 3.96, $p < .05$) or to be considered a danger to drive after drinking three alcohol units (80.5% vs. 89.5%, chi-square = 4.69, $p < .01$). Finally, the proportion of cigarette smokers in each group was similar. In order to verify that the reported results were not due to gender differences (26.0% of at-risk drinkers were females), additional analyses were conducted within the female subgroup and suggested similar conclusions.
CONCLUSION: These data suggest a profile for at-risk drinkers that links drinking behavior to other important risks, such as unsafe driving habits and less concern for healthier diets, but does not seem to alter the self-perception of at-risk drinkers that they are in good health.

**SCREENING FOR FIREARMS: A STUDY OF PRIMARY CARE AND PSYCHIATRIC PROVIDERS.** C. Carney[1], R. Spohn[2], E. Alonso[2], A. Major[2], A. Hansen[2]; [1]University of Iowa, College of Medicine, Departments of Psychiatry and Internal Medicine, Iowa City, IA; [2]University of Iowa, Iowa City, IA *(Tracking ID #52299)*

BACKGROUND: The ACP/ASIM and the AMA advocate that physicians should be actively involved in clinical and public health endeavors to reduce firearm-related violence. This study provides the first known assessment of both primary care providers and psychiatrists regarding firearm safety and screening.
METHODS: Primary care (general internists, family physicians, pediatricians, and obstetrician/gynecologists) and psychiatric providers at a rural tertiary referral center were surveyed regarding attitudes toward firearms, personal gun ownership, counseling behaviors, comfort with reporting patients at risk for firearm violence, and estimated rates of firearm-related injury.
RESULTS: Eighty physicians (78%) responded. The majority (75%) of primary care providers assessed screen patients for the presence of a firearm in the home or car, and counsel to remove firearms from the home less than 20% of the time. Psychiatrists were more likely than primary care providers to inquire about firearms and to counsel to remove guns ($P < 0.024$), although only 50% of the psychiatrists did so more than half of the time. Both groups infrequently provided gun safety education. Personal gun ownership by physicians did not influence assessment or counseling behaviors. Women were more likely to counsel than men providers ($P < 0.002$). Comfort levels at reporting patients at risk for firearm violence did not differ between primary care and psychiatry. Provider estimation of annual statewide firearm-related suicides and homicides ranged substantially (3 – 2800 and 5 – 1000, respectively).
CONCLUSION: Primary care providers infrequently assess and counsel patients about firearms; psychiatrists assess and counsel irregularly. The wide range of estimates for firearm injury suggests that physician knowledge regarding the scope of firearm injury is inadequate. Given the impact of firearm injury on public health, greater efforts are needed to understand and promote physician assessment and counseling of those at risk for firearm-related violence.

**SCREENING PRACTICES IN PRIMARY CARE:TRENDS REVEALED BY A TWENTY YEAR PROSPECTIVE SURVEY.** K.M. Chacko[1], L.E. Feinberg[1]; [1]University of Colorado Health Sciences Center, Denver, CO *(Tracking ID #51649)*

BACKGROUND: Previous studies document high rates of routine test ordering at preventive health exams (PHE). Yet, expert panels during the past twenty years have agreed that many screening lab tests need not be ordered routinely. Our longitudinal study during this period (1978 – 1999) describes screening practices of primary care physicians (PCP) and emphasizes trends in test-ordering over time.
METHODS: PCPs responded to questionnaires distributed at an educational meeting at four points between 1978 and 1999. A total of 2047 surveys were collected. Surveys were based on two case vignettes involving healthy individuals, a 35 y.o. man and a 55 y.o. woman. Questions focused on what lab tests were routinely ordered at a PHE. Data was further stratified based upon the proportion of physicians' time spent in internal medicine. Data was compared by decade as pre-1990 and post-1990 using a chi-squared analysis. Odds ratios were computed using a logistic regression model incorporating time spent in internal medicine and decade of survey.
RESULTS: Physicians' self-report of routine test-ordering for an apparently healthy 55 year old woman is depicted in Figure 1 below (p-values <0.0001). Comparable data for the healthy male case vignette were (expressed as % physicians ordering test pre-1990/post-1990) CBC (80/49), UA (87/35), CXR (36/5), EKG (30/9), and CHEM (47/43). Physicians who reported spending >50% of their time in internal medicine ordered more tests (p<0.05, except for UA and TSH).
CONCLUSION: Between 1978 and 1999, physician self-reports indicate a significant decrease in routine test-ordering for apparently healthy people. However, rates of ordering CBC, UA, and CHEM panels remained high, exceeding evidence-based guidelines published during this time. Routine thyroid function testing increased, a likely reflection of expert recommendations.




**INTERNAL MEDICINE TRAINEES LACK TEACHING AND TOOLS TO PRESCRIBE EXERCISE.** M.B. Conroy[1], S.J. Mcphee[1]; [1]University of California, San Francisco, San Francisco, CA *(Tracking ID #50482)*

BACKGROUND: Physical inactivity is a major health problem, with 40 – 60% of U.S. adults engaging in no regular exercise. Previous studies suggest that physicians infrequently prescribe exercise for patients.
METHODS: In the summer of 2001, we distributed an anonymous mailed questionnaire to 79 internal medicine residents in 2 university primary care clinics. We asked trainees about their own exercise habits, current practices of asking about, advising about and prescribing exercise and perceived barriers to these practices. We used a modified Likert scale ("very" or "somewhat comfortable," "somewhat" or "very uncomfortable") to assess the respondents' self-perceived ability with these tasks. We also asked whether subjects were familiar with current CDC guidelines for exercise frequency, duration and intensity in adults. Seventy-six (96%) residents completed the questionnaire.
RESULTS: Forty-three (57%) respondents were female; 24 (32%) were PGY-1s, 25 (33%) PGY-2s and 27 (35%) PGY-3s; and 29 (38%) were categorical residents and 47 (62%) primary care residents. Fifty-three (70%) respondents exercised regularly. While most respondents felt "very comfortable" asking patients about their exercise habits (66%) and giving general advice about exercise (51%), only 14% were "very comfortable" with prescribing a specific exercise program. Respondents' level of comfort in asking, offering or prescribing exercise was not influenced by their sex or their own exercise habits. Surprisingly, there was also no significant difference between PGY-1, -2 or -3 respondents. Common reasons cited for not prescribing exercise included insufficient time (80%), not knowing how to prescribe exercise (71%), not having a form to use (70%), and having too much other paperwork (62%). Less than half (42%) thought that chart reminders would increase their frequency of exercise prescription. Only 18% of respondents knew current CDC guidelines. While 41% said they had adequate knowledge to prescribe exercise for healthy adult patients, only 15% knew how to do so for patients with diabetes, compensated heart failure or other chronic medical conditions. 81% would attend a seminar to learn more about prescribing exercise and 87% believed that having a standardized exercise prescription form would make it easier to do so. Primary care residents were more interested than categorical residents in attending a seminar on exercise (89% vs. 65%, p = 0.01, chi square test).
CONCLUSION: Although chronically ill patients might benefit greatly from exercise prescriptions, most trainees surveyed did not know how to provide them. Trainees' level of comfort with prescribing exercise did not significantly during residency. However, respondents were interested in learning more about how to prescribe exercise and indicated that having a prescription form would help them to do so. Residency programs need to provide such teaching and tools.

**COLON CANCER SCREENING IN CENTRAL NORTH CAROLINA PRIVATE PRACTICES: DOES PATIENT'S RACE MAKE A DIFFERENCE?** S. Cykert[1], L. Kinsinger[2], R.P. Harris[3]; [1]University of North Carolina at Chapel Hill and the Internal Medicine Program of the Moses Cone Hospital, Greensboro, NC; [2]University of North Carolina School of Medicine, Chapel Hill, NC; [3]University of North Carolina at Chapel Hill, Chapel Hill, NC *(Tracking ID #51622)*

BACKGROUND: Over the last decade, racial disparities have been demonstrated in the use of many medical procedures ranging from breast cancer screening to lung cancer surgery. These disparities have often been associated with poorer health outcomes. The purpose of this study is to compare the rates of colon cancer screening between white and African-American patients in private practice settings and determine if systematic interventions in these practices affect these preventive care rates.
METHODS: Making Prevention Work was a four-year study funded by the National Cancer Institute designed to assess baseline preventive cancer care in private practices then, in partnership with each practice, to create interventions that maximize this care. One hundred and thirty-one physicians in 27 practices located in central North Carolina were recruited to participate in the study. Ten practices served as "control" practices while 17 were in the intervention group. Colon cancer screening was defined as performance of a stool hemoccult test within the last year, flexible sigmoidoscopy within the last 3 years, or colonoscopy within the last 3 years. Patients aged 50 to 80 years without a history of cancer were eligible for the study and every 10th practice chart was systematically reviewed. At baseline (1995 – 1996), the charts of 245 African-American patients and 2352 white patients were reviewed. At study follow-up (the year 2000) these numbers were 334 and 2523, respectively. Practice interventions included computer support, planning of office systems, tools such as flow sheets, staff education, and patient education.
RESULTS: At baseline, 50% of white patients and 46% of African-American patients were screened for colorectal cancer (p = 0.2). At follow-up, the percentage screened rose to 59% for whites and 54% for African-Americans (p = 0.1). There were no differences between the control practices and intervention practices in either baseline screening or changes over time. A logistic regression model for colon cancer screening that controlled for physician cluster, practice cluster, time, and race was constructed. The only significant association with performance of screening was later date (the follow-up chart review).
CONCLUSION: We did not demonstrate statistically significant racial differences in colorectal cancer screening in private practices in central North Carolina. Our study suggests that at least in private practice settings, colorectal cancer screening should not be a priority area in racial disparities research.

**COLORECTAL CANCER SCREENING KNOWLEDGE, ATTITUDES, AND BELIEFS: DOES HEALTH LITERACY MAKE A DIFFERENCE?** N.C. Dolan[1], M.R. Ferreira[1], R.C. Newlin[2], K.C. Gibbon[2], M.L. Fitzgibbon[1], T.C. Davis[3], C.L. Bennett[2]; [1]Northwestern University, Chicago, IL; [2]VA Chicago Health-Care System Lakeside Division, Chicago, IL; [3]Louisiana State University Health Sciences Center, Shreveport, LA *(Tracking ID #51543)*

BACKGROUND: Low literacy is an under-appreciated factor in cancer control communication. Cancer screening information may be ineffective in individuals with low literacy because they have limited knowledge of cancer control and its accompanying vocabulary. The purpose of this study is to evaluate whether poorer knowledge and more negative attitudes and beliefs about colorectal cancer (CRC) screening exist in those with inadequate health literacy in a VA population.
METHODS: We interviewed 185 VA male general medicine patients who were at average risk for CRC and had not had CRC screening according to VA guidelines. The interview included questions on demographics, knowledge, attitudes, and beliefs about CRC screening, as well as the REALM (Rapid Estimate of Adult Literacy in Medicine), a standardized assessment of patient literacy level. Inadequate literacy was defined as a literacy level below the 9th grade. Data were analyzed using t-tests, chi-square, and logistic regression to adjust for age and race.
RESULTS: Those with inadequate literacy were less well educated, (mean education 11.2 yrs ± 0.4 vs. 14.3 yrs ± 0.2, p < 0.001) and were more likely to be African-American (54% vs. 24%, p < 0.001) than those with adequate literacy. Age was similar in the two literacy groups (mean 68.4 yrs ± 1.2 vs. 67.2 yrs ± 0.9, p = 0.45). Compared to those with adequate literacy, those with inadequate literacy were less likely to have heard of CRC(88% vs.98%, p = 0.01) or tests to detect CRC (43% vs. 70%, p = 0.003). They were also less likely to know what either a flexible sigmoidoscopy (22% vs. 50%, p < 0.005) or a hemoccult test (8% vs. 44%, p < 0.001) was, and were less likely to know the age to start CRC screening (21% vs. 42%, p = .02). There were no differences in attitudes about CRC screening, or beliefs about seriousness of CRC, perceived susceptibility to CRC, or benefits of CRC screening. Compared to those with adequate literacy, however, those with inadequate literacy were more likely to be worried about flexible sigmoidoscopy being painful (57% vs. 44%, p = 0.08), hemoccult being messy (30% vs. 11%, p = 0.02) or hemoccult being inconvenient (39% vs. 17%, p = 0.01).
CONCLUSION: Patients with lower health literacy were significantly less knowledgeable about colorectal cancer screening, and more likely to have negative beliefs about flexible sigmoidoscopy and hemoccult testing than those with adequate literacy. Lack of knowledge and negative beliefs about colorectal cancer screening tests may be important barriers to colorectal cancer screening in lower literacy populations.

**MUTABLE DETERMINANTS OF COLORECTAL CANCER SCREENING TEST UTILIZATION BY PRIMARY CARE PROVIDERS IN A MANAGED CARE SETTING.** G. Dulai[1], M. Farmer[1], P. Ganz[1], K. Qi[1], C. Bernaards[1], K.L. Kahn[1]; [1]University of California, Los Angeles, Los Angeles, CA *(Tracking ID #52222)*

BACKGROUND: Colorectal cancer screening tests (e.g. fecal occult blood testing = FOBT & flexible sigmoidoscopy = FS) can decrease colorectal cancer mortality, but are underutilized. Primary care providers (PCPs) play a critical role in screening, but mutable barriers & facilitators to their use of screening tests in managed care settings are not well described. Our objectives were to describe current colorectal cancer screening practices & explore mutable determinants of test utilization by PCPs in a Californian network model HMO.
METHODS: Cross-sectional, self-administered, mail survey with response rate of 66%. Setting was a Californian network model HMO with ~150 affiliated provider organizations (Independent Practice Associations and Integrated Medical Groups) in 1999 – 2001. Potential subjects were drawn from a stratified random sample of 1336 HMO PCPs. Measurements included frequency of self-reported recommendations for use of available colorectal cancer screening tests & potential determinants of use.
RESULTS: 90% of respondents reported having a systematic approach to screening, but said that only 79% of their average risk patients were systematically screened, regardless of method. Median utilization of individual tests varied from barium enema 5%, colonoscopy 10%, FS 70%, to 90% for FOBT. Most respondents (85%) used several office-based methods to encourage PCPs to order screening, but few (26%) used more than one patient-directed method. Most (69%) reported that their provider organization recommended a specific approach to screening, but only 18% said that the organization tracked screening rates. In logistic regression models, mutable determinants of FOBT & FS use included the priority placed on screening, percentage of patients having health maintenance exams, presence of competing health concerns, PCP forgetfulness, & patient compliance. The provider organization's structure was a strong immutable determinant of use across models, with PCPs in Independent Practice Associations being less likely to screen than those in Integrated Medical Groups.
CONCLUSION: Self-reported rates of colorectal cancer screening in this managed care setting are higher than nationally reported rates, but still sub-optimal. We have identified mutable determinants of utilization that may guide interventions aimed at increasing screening of age eligible subscribers to managed care health insurance plans.

**IS ADHERENCE TO PREVENTIVE SERVICES GUIDELINES INFLUENCED BY CLINIC VISIT AND PATIENT POPULATION CHARACTERISTICS?** S. Flach[1], K.D. Mccoy[2], B.J. Bootsmiller[2], B.N. Doebbeling[1]; [1]University of Iowa, Iowa City, IA; [2]Iowa City VAMC, Iowa City, IA *(Tracking ID #50903)*

BACKGROUND: Preventive care guidelines can improve patients' health, but adherence is suboptimal. To better understand the delivery of important preventive care services, we investigated the relationship between characteristics of the clinic visit and delivery of evidence-based clinical preventive services according to national guidelines throughout the VA (N = 133). We hypothesized that preventive service delivery is influenced by communication skills, continuity of care, sufficient time, patient involvement, patient and organizational characteristics, and the patients' overall impression of their clinic visit.
METHODS: Multivariate regression models were developed to explain facility-level variation in preventive care delivery. Explanatory variables included organizational, provider and patient-level items from the 1999 Veterans Satisfaction Survey, the 1999 American Hospital Association Survey, and the 1999 Veteran's Health Survey (VHS). Our outcome measure was a scaled score measuring the national percentile rank at the facility level of eligible veterans who reported receiving each of 12 recommended preventive activities (eg, screening for hypertension, colon cancer, flu immunization, etc) from the 1999 VHS.
RESULTS: Two measures of improved continuity were significantly related to improved prevention delivery: the frequency of seeing the usual provider at the last clinic visit and facilities whose patients report receiving a greater proportion of their care at the VA. One measure of patient involvement and two patient population characteristics were significantly related to a decrease in prevention activity: the proportion of patients who reported having important issues which were not discussed, a greater proportion of Hispanic patients, and the proportion of patients in excellent health.
CONCLUSION: Improved continuity of care and greater patient involvement are associated with improved adherence with recommended preventive services in a nationwide sample of VA primary care sites. Race and health status also influence delivery of prevention services. Efforts to improve adherence to preventive service guidelines should focus on improving continuity of care, patient involvement and understanding the relationship between health status, race, and prevention activities.

**ATTITUDES TOWARD CONDOM USE IN HOMELESS ADOLESCENTS.** D. Gordon[1], C. Gilroy[1]; [1]University of Colorado Health Sciences Center, Denver, CO *(Tracking ID #52354)*

BACKGROUND: Homeless adolescents are known to be at high risk for undesired pregnancy and sexually transmitted diseases (STD's). Condoms are the only single method capable of preventing both pregnancy and STD. Condom use in adolescents in the US increased 23% between 1991 and 1997, at a time when HIV-prevention messages became prevalent. Homeless adolescents are at particular risk for undesired pregnancy and STD's. We surveyed homeless adolescents about condom use in 1992 and 1998 to assess if attitudes and behaviors in condom use had changed.
METHODS: Homeless youth at the only Denver shelter dedicated to youth under 21 were surveyed in 1992 and 1998. The surveys were of structured interview form based on the Adolescent Health Survey instrument. Questions about condom use were asked at two different points in the 1998 survey, as a method of sorting attitude from behavior. The condom questions were asked first in the context of contraceptive use, and second in the context of HIV prevention. Outcomes measured included condom use (percent), condom carrying, STD's, and pregnancies.
RESULTS: The youth who 'never' used condoms decreased by 24%, and STD's and pregnancies decreased at the same time. In the 1998 study, in the context of condom use as pregnancy prevention, 83% of males and 25% of females reported using condoms. In the context of condom use as HIV prevention, 85% of males and 78% of females reported using condoms.
CONCLUSION: In this study, a group of high-risk homeless youth showed increased condom use during the 1990's, consistent with national trends. Complications of unprotected sex such as pregnancy and STD's were decreased, demonstrating that behavior, not just attitudes had changed. Homeless girls may associate their condom use more with STD prevention than pregnancy prevention, suggesting a division in attitude to two important health concerns. This study demonstrates the potential of public health campaigns to affect behavior. Additional studies are needed to assess adolescent attitudes towards condom use and guide future educational programs.

**Condom Use and Outcomes**

| | 1992 (N = 244) | 1998 (N = 97) |
|---|---|---|
| Never Use Condoms | 42% | 18% |
| Always Use Condoms | 28% | 31% |
| Have Condom Now | 34% | 45% |
| Ever had STD | 26% | 18% |
| Ever Pregnant (female) | 60% | 45% |
| Ever got Someone Pregnant (male) | 40% | 22% |

**RESIDENTIAL SMOKING CESSATION THERAPY.** A. Green[1], W.S. Yancy[2], L. Braxton[1], E.C. Westman[1]; [1]Durham VAMC, Durham, NC; [2]Duke University, Durham, NC *(Tracking ID #52446)*

BACKGROUND: Sustained abstinence from smoking is 10 times more likely after successful abstinence on the first quit day. In addition, success at smoking cessation is positively correlated with the level of intensity of the smoking cessation program. Given the multitude of sequelae from cigarette smoking, evaluation of more intense programs for recidivous smokers is warranted. The purpose of this study was to evaluate an intensive four-day residential smoking cessation program for smokers who relapsed after treatment in an outpatient stop smoking program.
METHODS: Twenty-three medical outpatient smokers with other cardiac disease risk factors or known smoking-related disease were lodged in a Veterans' Affairs Medical Center for four days and attended nutrition, exercise, psychology, and other educational sessions in a supportive, smoke-free environment. Nicotine withdrawal was treated with nicotine inhalers and patches, and adjusted according to craving symptoms and nicotine side effects. After discharge, the participants attended monthly outpatient groups for six months. Smoking abstinence was determined by self-report of zero cigarettes smoked and by exhaled carbon monoxide < 8 ppm. For calculation of abstinence rates (95% confidence intervals), dropouts were considered to have relapsed.
RESULTS: The mean age of participants was 57.4 ± 13.7 years, 100% were male, 61% were Caucasian, and 39% were African-American. The mean number of cigarettes smoked per day was 25.2 ± 13.7 and the range of quit attempts was two to greater than five attempts, with a mean of 2.9 ± 1.5. The average Fagerstrom nicotine dependence score was 7.1±2.3. At discharge from the hospital (after four days), daily nicotine doses ranged from the nicotine inhaler alone to a calculated total daily nicotine treatment of 56 mg (mean 21 ± 19 mg) from a combination of transdermal nicotine plus inhaler; 65.2% of participants were using nicotine patches and 69.5% were using the nicotine inhaler. Verified smoking abstinence on discharge was 87.0% (95% CI: 73 – 100%). At six months, the 7-day point abstinence rate was 27.3% (95% CI: 9 – 45%) with no patients using the nicotine patch and 22% using the inhaler.
CONCLUSION: This pilot residential smoking cessation program was designed to assist smokers who relapsed after outpatient treatment. Four days of residential smoking cessation therapy successfully relieved smoking withdrawal. At six months after discharge, the participants maintained an abstinence rate comparable to other medical therapies for smoking cessation.

**WHOSE RESPONSIBILITY IS PREVENTIVE CARE?** R.P. Harris[1], L.S. Kinsinger[1]; [1]University of North Carolina at Chapel Hill, Chapel Hill, NC *(Tracking ID #52415)*

BACKGROUND: Involving patients in their health care is an increasingly important trend. Which tasks in preventive care patients should be responsible for is not clear.
METHODS: We surveyed 137 primary care clinicians, 156 of their clinical staff, 820 women patients, and 710 men patients (ages 40 – 80) in 26 community practices in central North Carolina in 2001. Response rates were 91%, 94%, 84%, and 84%, respectively. We asked all the same two questions: whose job is it to know which preventive care tests are recommended and to know when the preventive care tests are next due. We also asked clinicians who should make the decision about whether a woman has a mammogram and we asked clinicians and men patients about deciding whether a man has a prostate specific antigen (PSA) test.
RESULTS: 95 – 100% of all groups agreed that clinicians have the primary responsibility of knowing the preventive care recommendations. From 70% to 90% of all groups agreed that clinicians, either alone or with the patient, have primary responsibility for knowing when the next test is due. 87% of clinicians responded that the decision for both PSA and mammography screening should be shared between clinician and patient. 65% of men patients agreed that the decision to have a PSA should be shared.
CONCLUSION: We found broad agreement that clinicians play the dominant role in knowing preventive care recommendations and when tests are next due. We also found agreement that decisions about mammography and PSA tests should be shared between patients and clinicians.

**HOW DO PRACTICING PHYSICIANS RATE THE STRENGTH OF EVIDENCE FOR PROSTATE SPECIFIC ANTIGEN SCREENING?** R.P. Harris[1], L.S. Kinsinger[1]; [1]University of North Carolina at Chapel Hill, Chapel Hill, NC *(Tracking ID #52428)*

BACKGROUND: Although expert groups consider the evidence for the efficacy of prostate specific antigen (PSA) screening to be insufficient, practicing physicians' evaluation of the evidence is not clear.
METHODS: We surveyed 109 primary care physicians (response rate 90%) in 26 community practices in central North Carolina in 2001 concerning their evaluation of the evidence for benefits and harms of PSA screening. We also asked whether they recommend screening and how strongly they do so.
RESULTS: 31% of physicians assessed the evidence for reduced mortality from PSA screening to be "uncertain;" 19% assessed the evidence to be "very strong;" and 51% responded "strong enough." 28% of physicians rated the evidence of harms from PSA screening to be "uncertain;" 41% assessed the evidence as "very strong;" and 30% responded "strong enough." 87% of physicians recommended periodic PSA screening; 73% recommended it "very strongly" or "strongly."
CONCLUSION: Physicians rate the strength of evidence for reduced mortality from PSA screening as stronger than expert groups. The great majority of physicians strongly or very strongly recommend screening.

**PREVALENCE OF OSTEOPOROSIS RISK FACTORS AND OSTEOPOROSIS SCREENING IN A HIGH RISK AND PRIMARY CARE POPULATION.** L.S. Inouye[1], H. Morgan[1], T. Knee[1]; [1]Naval Medical Center (Portsmouth), Portsmouth, VA *(Tracking ID #51536)*

BACKGROUND: Osteoporosis is a growing national health concern, particularly in postmenopausal women. The National Osteoporosis Foundation (NOF) recommends bone densitometry for women over age 65 or if postmenopausal with one other risk factor. This may encompass most postmenopausal women, though screening all postmenopausal women has not been recommended. We sought to determine the prevalence of osteoporosis risk factors in various settings of care, and to assess the need for bone densitometry in our patients.
METHODS: Convenience survey in the Orthopedics clinic and five primary care clinics at the Naval Medical Center, Portsmouth, Virginia. Respondents provided information on demographics, osteoporosis risk factors, and whether they had undergone bone densitometry.
RESULTS: Eight hundred nine responses were tabulated. Seventy five percent were female. In the orthopedics clinic 40 of 223 women (18%) were postmenopausal and 32 of the 40 (80%) had at least one other risk factor for osteoporosis. In the primary care clinic 75 of the 586 women (12.8%) were postmenopausal and 59 of the 75 (79%) had at least one other osteoporosis risk factor. Only 12.5% of the women from the orthopedics clinic and 17% from the primary care clinics who should have undergone bone densitometry according to the NOF guidelines had done so.
CONCLUSION: In these patient populations there are a significant proportion of women with osteoporosis risk factors. Very few of these women have undergone bone densitometry. Using the NOF guidelines there appears to be a significant need for bone densitometry testing for osteoporosis risk determination in both of these clinical settings. Further analysis will seek to compare other known guidelines for assessing osteoporosis risk.

**DOES IMPLEMENTATION OF THE AHRQ SMOKING CESSATION GUIDELINE IN PRIMARY CARE HELP PATIENTS STOP SMOKING?** D.A. Katz[1], D.R. Muehlenbruch[1], R.B. Brown[1], M.C. Fiore[1], T.B. Baker[1]; [1]University of Wisconsin, Madison, WI *(Tracking ID #51646)*

BACKGROUND: The Agency for Healthcare Research and Quality (AHRQ) Smoking Cessation Practice Guideline recommends systematic assessment of smoking status and counseling of smokers at every visit, but the feasibility of implementing the guideline and its actual effectiveness in clinical practice are unknown.
METHODS: We conducted a randomized controlled trial in 8 primary care clinics of a guideline-derived intervention (nurse training on use of modified vital signs stamp, proactive telephone counseling plus free nicotine replacement therapy (NRT)). After baseline data collection (6/99-6/00), the intervention was implemented in 4 test clinics (6/00-5/01); patterns of usual care were observed concurrently at 4 control clinics. We obtained exit interviews of 2164 consecutive adult smokers who presented for routine, non-emergency care and agreed to follow-up. Abstinence (no cigarettes over prior 7 d) was determined by telephone interview. Follow-up at 6-mo was 87 and 89% complete at test and control clinics, respectively. We used hierarchical logistic regression models to determine the effect of the intervention on cessation outcomes, after adjustment for patient-level covariates (e.g., age, gender, cigarettes per day).
RESULTS: Concordance with guideline recommendations was significantly greater at test clinics during the intervention vs. baseline periods; negligible changes in concordance were observed at control clinics. Compared to control smokers, a significantly greater proportion of test smokers made a quit attempt or stopped smoking during the intervention period (Table, *$p \leq 0.05$). In addition, test smokers who were still smoking at 6-mo follow-up tended to be more likely to have a plan to quit than control smokers (OR 1.3, 95% CI 0.9–1.8). There were no significant differences in cessation outcomes between test and control smokers during the baseline period.

| | Baseline Period | | | Intervention Period | | |
|---|---|---|---|---|---|---|
| | Control (n=510) | Test (n=513) | Adjusted OR (95% CI) | Control (n=499) | Test (n=642) | Adjusted OR (95% CI) |
| Any quit attempt, % | 41 | 44 | 1.1 (0.9-1.5) | 50 | 57 | 1.4 (1.0-1.9)* |
| 2-mo quit rate, % | 5.1 | 5.3 | 1.0 (0.6-1.8) | 5.8 | 16.4 | 3.3 (1.9-5.6)* |
| 6-mo quit rate, % | 8.6 | 7.8 | 0.9 (0.6-1.4) | 9.8 | 15.4 | 1.7 (1.2-2.6)* |

CONCLUSION: Nurse-based implementation of the AHRQ smoking cessation guideline significantly increased quit rates by focussing attention on smokers who are interested in quitting. The 6% absolute difference in 6-mo quit rates associated with this intervention is similar to that observed in clinical trials of NRT. Effective reduction of tobacco use requires redesigning health care systems to improve the delivery of cessation advice and pharmacotherapy to properly selected smokers in a time-efficient manner.

**KNOWLEDGE AND INTEREST IN BREAST CANCER CHEMOPREVENTION.** L.S. Kinsinger[1], R.P. Harris[1]; [1]University of North Carolina at Chapel Hill, Chapel Hill, NC *(Tracking ID #51814)*

BACKGROUND: Tamoxifen has been shown to be effective in reducing the risk of breast cancer. Acceptance of this strategy by physicians and women patients is unknown.
METHODS: As a part of the Making Prevention Work study, a four-year study funded by the National Cancer Institute to improve the delivery of breast and colorectal cancer screening services in primary care practices, we surveyed 109 physicians and 820 women patients ages 40–80 in 26 community practices in central North Carolina in 2001. Response rates were 90% for physicians and 84% for women. We asked physicians about familiarity with breast cancer risk calculation and chemoprevention. We asked women patients about knowledge of and interest in breast cancer chemoprevention.
RESULTS: 56% of the 109 physicians were not familiar with the Gail model of breast cancer risk assessment and 69% were not comfortable discussing tamoxifen with high-risk women. Only 20% had discussed it with more than 5 women. 80% of women had never heard of a medicine to prevent breast cancer. Their interest in taking such a medicine depended on cost and side effects.
CONCLUSION: We found low knowledge about breast cancer chemoprevention among both physicians and women patients. Use of tamoxifen will likely require education among both groups.

**IS SCREENING FOR OSTEOPOROSIS ASSOCIATED WITH FEWER HIP FRACTURES?** L.M. Korn[1], N.R. Powe[1], M.A. Levine[1], T.B. Harris[2], J. Robbins[3], A. Fitzpatrick[4], L.P. Fried[1]; [1]Johns Hopkins University, Baltimore, MD; [2]National Institute on Aging, Bethesda, MD; [3]University of California, Sacramento, CA; [4]University of Washington, Seattle, WA *(Tracking ID #46415)*

BACKGROUND: Guidelines disagree on who should be screened for osteoporosis, in part due to lack of direct evidence for the effectiveness of screening. The objective of this study was to determine if population-based screening for osteoporosis in older adults is associated with fewer incident hip fractures compared to usual primary care.
METHODS: We conducted a non-concurrent cohort study of 3107 adults over age 65 who lived in four U.S. communities enrolled in the Cardiovascular Health Study. Participants were randomly selected from Medicare eligibility lists. We included those who came to their study visits in 1994–95 and excluded those with a history of osteoporosis, hip fracture or bisphosphonate use. In that year, participants in 2 of the 4 communities were offered bone density scans, and the results of these tests were given to the participants and their primary care providers. In the other 2 communities, participants received usual primary care. The two groups (those screened by the study and those receiving usual care) were followed for up to 6 years for the outcome of incident hip fracture, which was abstracted from medical records. Variables considered as potential confounders included demographic variables, medical problems, medications and physical exam findings. Survival analysis and Cox proportional hazards models were used to compare time to first hip fracture in the screened and usual care groups.
RESULTS: Of 1422 eligible participants offered scans, 97% completed them. There were 33 incident hip fractures in the screened group (n = 1422 people) and 69 incident hip fractures in the usual care group (n = 1685 people; $p < 0.01$). At the end of 6 years, the cumulative incidence of hip fractures in the screened group was 3.0%, compared to 5.0% in the usual care group ($p < 0.01$). The unadjusted relative hazard of having a first hip fracture was significantly lower in the screened group (HR 0.59, 95% CI 0.39–0.89). Screening was still associated with a significantly lower hazard of hip fracture after adjustment for gender, age, race-ethnicity, education, self-reported health status, body weight, exercise, walking speed, cognitive function and oral steroid use (HR 0.58, 95% CI 0.35 – 0.97).
CONCLUSION: Screening for osteoporosis was associated with 40% fewer incident hip fractures over 6 years, compared to usual primary care. Although this study was not randomized, these data suggest that screening for osteoporosis may be beneficial for community-dwelling women and men over age 65.

**EFFECT OF TAILORED LETTER ON COLORECTAL CANCER SCREENING BEHAVIOR.** B. Ling[1], J.M. Trauth[1], R.E. Schoen[1], M. Hayran[1], J. Weissfeld[1]; [1]University of Pittsburgh, Pittsburgh, PA *(Tracking ID #50977)*

BACKGROUND: Population-based surveys indicate that colorectal cancer (CRC) screening is underutilized. To stimulate adoption of this preventive behavior, we developed a community-based intervention where residents were provided with an individualized letter summarizing their CRC risk as well as their past and current screening behavior.
METHODS: A local community outside of Pittsburgh, PA was targeted for the CRC screening intervention. Using Pennsylvania driver's license lists and Medicare enrollment lists, a random sample of persons aged 50–79 years were sent a recruitment packet. Those who consented underwent a baseline telephone interview that included an assessment of personal or family history of CRC or polyps, prior utilization of CRC screening tests, and awareness of and intent to undergo specific CRC screening tests (i.e., fecal occult blood testing, flexible sigmoidoscopy). Based upon this information, a tailored letter was mailed to each participant summarizing CRC and the effectiveness of screening, the participant's personal risk for CRC, and a description of their past and current screening status. One year later, a follow-up telephone interview was conducted to measure awareness of, utilization within the past year, and future intent in undergoing fecal occult blood testing or flexible sigmoidoscopy. In addition, we measured the letter's impact on participants discussing CRC screening with their primary care provider as well as on influencing them to complete a CRC screening test.
RESULTS: There were 426 participants at baseline (18.8% response rate) and 422 at follow-up (99% response rate). For fecal occult blood testing, measurement pre and post intervention

revealed the following: awareness of the test (89.9% pre, 91.7% post, p = 0.36), compliance with current guidelines of annual testing (37.6% pre, 45.2% post, p = 0.02), and intention of performing the test among those who had never had it before (41.7% pre, 38.8% post, p = 0.54). For flexible sigmoidoscopy, measurement pre and post intervention revealed the following: awareness of the test (56.6% pre, 65.6% post, p < 0.01), compliance with current guidelines of testing every five years (15.3% pre, 15.6% post, p = 0.88), and intention of performing the test among those who had never had it before (17.4% pre, 8.5% post, p < 0.01). In addition, 24.4% (n = 104) of the participants discussed the intervention letter with their primary care provider and 16.7% (n = 71) stated that the letter influenced behavior to have a CRC screening test performed.
CONCLUSION: A letter tailored upon personal risk for CRC and status toward screening appears to have had relatively minimal impact on behavior change. Based upon these results, a follow-up study is being performed evaluating the combination of personalized letters to individuals with a corresponding letter to their primary care provider in hopes of stimulating discussion about and performance of CRC screening tests.

**TRUST IN PHYSICIAN SCALE AND THE USE OF PREVENTIVE SERVICES.** B. Ling[1], M. Kelley[1], J.C. Whittle[1]; [1]University of Pittsburgh, Pittsburgh, PA *(Tracking ID #51181)*

BACKGROUND: The Trust in Physician Scale is a validated instrument measuring the degree of trust one has in their physician. The use of this instrument to associate trust with preventive service utilization has not yet been reported in the literature. Thus, we used the Trust in Physician scale to evaluate this association.
METHODS: A random sample of patients from a local VA primary care clinic was administered the Trust in Physician Scale, which is an 11-item, single-score scale assessing the degree of interpersonal trust in the patient-physician relationship. We obtained data on influenza vaccination in the past year for those >65 years, pneumococcal vaccination ever for those >65 years, fecal occult blood testing in the past two years for those >50 years, performance of flexible sigmoidoscopy in the past five years for those >50 years, and prostate specific antigen testing in the past two years for those >50 years through medical record review. T-tests were used to assess the association between trust in one's primary care physician and the use of the above mentioned preventive services.
RESULTS: Our sample population of 169 patients (51.2% response rate) consisted of 15.4% African American, 82.8% Caucasian, 1.8% other; 99.4% male; and a mean age of 68.1 years. The potential scoring range for the Trust in Physician scale is 5 – 55 with higher scores indicating greater trust with one's physician. In this study, the mean Trust in Physician score was 41.8, with a range of 30 – 54. Completion of the various preventive services are as follows: influenza vaccination (82.1%), pneumococcal vaccination (85.8%), fecal occult blood testing (59.5%), flexible sigmoidoscopy (15.2%), and prostate specific antigen testing (66.5%). The only statistically significant difference when comparing mean Trust in Physician scores between those who completed a particular preventive service from those who did not was for prostate specific antigen testing. The mean Trust in Physician score for those completing the preventive service versus those who did not are as follows: influenza vaccination (completed 41.4, not completed 42.4, p = 0.31), pneumococcal vaccination (completed 41.7, not completed 41.1, p = 0.57), fecal occult blood testing (completed 41.6, not completed 42.2, p = 0.33), flexible sigmoidoscopy (completed 43.0, not completed 41.6, p = 0.12), and prostate specific antigen testing (completed 42.4, not completed 40.8, p = 0.02).
CONCLUSION: There is minimal association between Trust in Physician score and use of preventive services in our study population. While previous work that globally measured trust with a single item suggests an association between trust in physician with use of screening mammography, clinical breast exams, and PAP smears, such an association was not found by us in assessing other preventive services in a predominantly male population. Future work should evaluate trust in physician using both a global question and a validated instrument such as the Trust in Physician scale within various clinical settings, patient populations, and preventive services to better address the issue.

**CIGARETTE SMOKING BEHAVIOR AND ATTITUDES AMONG MULTIRACIAL PATIENTS WITH UPPER RESPIRATORY INFECTIONS.** T.D. Mackenzie[1], R. Harris[2], B.A. Leeman[3], K. Corbett[3], R. Gonzales[4]; [1]Denver Health and Hospitals, Denver, CO; [2]Denver Health Medical Center, Denver, CO; [3]University of Colorado at Denver, Denver, CO; [4]University of California, San Francisco, San Francisco, CA *(Tracking ID #52387)*

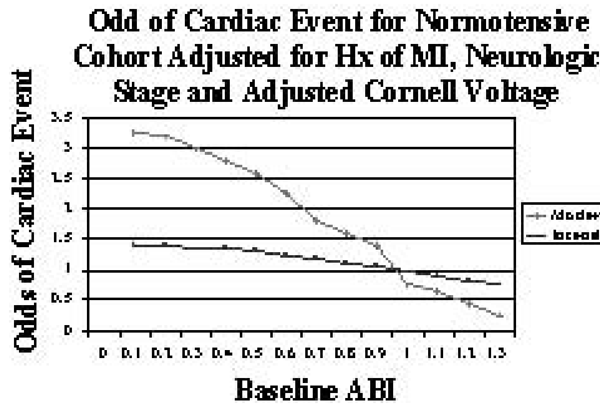
BACKGROUND: Smokers presenting with acute respiratory infections (ARI) often continue smoking through their illness despite believing that smoking makes their symptoms worse. We describe the prevalence of smoking and attitudes about smoking among low income, ethnically diverse patients with coughs and colds in an urban public urgent care clinic.
METHODS: All adults presenting with symptoms of ARI to a public hospital urgent care clinic were asked to participate in a self administered computer-based interactive health communication (IHC) module prior to their visit. The module was offered in either English or Spanish and collected information about ARI symptoms, self care attitudes, expectations, and health behaviors. The computer then delivered a likely ARI diagnosis, self-care strategies, and education about the role of antibiotics in the management of ARI. Providers subsequently documented the clinical diagnosis and recommended treatment. A total of 394 adults began the module and 372 completed it.
RESULTS: The population was 10 percent African American (AA), 43 percent Hispanic, and 40 percent White. Twelve percent were monolingual Spanish and 17 percent were bilingual English/Spanish. Forty-one percent of females and 52 percent of males were current smokers (p < 0.05). Approximately 55 percent of Whites and AA were current smokers, as were 35 percent of Hispanics (p < 0.001). Only 20 percent of patients who chose the Spanish module were current smokers compared with 49 percent of those who chose the English module (p < 0.001). An equal number of smokers and non-smokers disagreed with the statement that "People who smoke cigarettes get colds more often than people who don't smoke" (9 percent). However, 75 percent of smokers and 55 percent of non-smokers agreed with the statement (p < 0.01). An equal number of smokers and non-smokers wanted antibiotics for their illness very much or somewhat (70 percent). Among smokers, only 3 percent believed that smoking made their symptoms better, and 59 percent believed smoking made them worse. These percentages did not vary significantly across diagnoses. Eight-four percent of smokers were smoking less during the illness than prior to the ARI. Smokers were less likely to receive a diagnosis of viral upper respiratory infection (35 vs. 41 percent) and were more likely to receive a diagnosis of bronchitis (19 vs. 13 percent) compared to non smokers.
CONCLUSION: Among patients presenting with ARIs, the prevalence of cigarette smoking was high with marked ethnocultural variation. Most smokers smoke less during an ARI and believe that smoking makes their ARI symptoms worse. Smokers were more likely to receive a clinical diagnosis of bronchitis compared to non-smokers.

**SELF-REPORTED HYPERTENSION TREATMENT BELIEFS AND PRACTICES AMONG PRIMARY CARE PHYSICIANS IN A MANAGED CARE ORGANIZATION.** K.L. Margolis[1], S.J. Rolnick[2], K.K. Fortman[2], M.V. Maciosek[2], C.L. Hildebrant[1], R.H. Grimm[1]; [1]Hennepin County Medical Center, Minneapolis, MN; [2]HealthPartners Research Foundation, Minneapolis, MN *(Tracking ID #52121)*

BACKGROUND: Studies in numerous settings have found that blood pressure (BP) is controlled to recommended targets in less than 1/3 of people with hypertension, and no improvement has been seen in population-based studies over the past decade. There has been surprisingly little recent research on physician beliefs and practices with regard to hypertension.
METHODS: In late 1999, we conducted a mailed survey of all primary care physicians in the 18 owned clinics of a large staff model HMO. In this setting the BP control rate was 33% in 1998. The survey included questions about demographics, BP treatment goals for patients with uncomplicated hypertension, and beliefs about hypertension.
RESULTS: Of 128 physicians contacted, 104 (81%) completed the survey. The mean age was 43 years, 65% were male, 57% were family practitioners, and 43% were internists. The stated systolic BP (SBP) treatment goal was <140 mm Hg for 33% of physicians, 140 mm Hg for 64% and 150 mm Hg for 3% whereas the diastolic BP (DBP) goal was <90 mm Hg for 47% and 90 mm Hg for 53%. The SBP goal for patients with isolated systolic hypertension was <140 mm Hg for 11%, 140 mm Hg for 71%, and 141 – 160 mm Hg for 18%; and 34% stated that they would treat to a different SBP goal depending on the DBP. The proportions who would intensify treatment for BP of 140/90, 150/95, 165/75 and 165/65 were 64%, 97%, 89% and 77%, respectively. While 86% agreed that lifestyle changes were helpful in controlling BP, 93% felt that medication was necessary to control BP in most cases. A majority (55%) agreed with the statement that BP could be controlled in most patients with only one drug. Although 42% agreed that they often had to change drugs because of side effects, only 16% felt that it was time-consuming to find a well-tolerated drug regimen. Respondents generally agreed with the statements that their patients were adherent with drug treatment (63%) and attended follow-up visits regularly (64%). There were few differences in beliefs or practices by physician sex, specialty or age.
CONCLUSION: In this setting, primary care physicians' self-reported practices are in good agreement with evidence-based guidelines, and their beliefs are favorable to therapy. It is unlikely that major improvements in BP control can be achieved through physician educational, although our data point to a need to emphasize that BP should be less than (rather than equal to) the target, that combination drug therapy is frequently required to achieve BP control, and that more aggressive intervention is often warranted for isolated systolic hypertension.

**INTENSIVE BLOOD PRESSURE CONTROL REDUCES CARDIAC EVENTS IN DIABETIC PATIENTS WITH ARTERIAL DISEASE.** P.S. Mehler[1], R. Estacio[1], J. Coll[1], A. Esler[1], W. Hiatt[1]; [1]Denver Health, Colorado Prevention Center, University of Colorado, Denver, CO *(Tracking ID #51943)*

BACKGROUND: Peripheral Arterial Disease (PAD) is associated with an increased incidence of adverse cardiovascular events. Although the benefits of overall treatment of hypertension are firmly established, in PAD the data are more modest. We studied the effects of intensive blood pressure reduction in diabetic patients with PAD to see if it was associated with an improved risk of ischemic events.
METHODS: There were 450 normotensive type 2 diabetic subjects previously enrolled in the stellar ABCD prospective hypertension trial. Those randomized to the intensive arm had a treatment goal of decreasing the diastolic blood pressure (DBP) by 10 mmHg from the mean baseline value, with further random assignment to receive either nisoldipine or enalapril. Those randomized to the moderate group received placebo to maintain their DBP between 80 & 89 mmHg. Baseline studies were obtained during the single-blind placebo run-in period including measurements of the ankle-brachial index (ABI). PAD was defined as an ABI <0.90. There were 53 patients with PAD; 22 had been randomized to the intensive group and 31 to the moderate group.
RESULTS: Mean blood pressure after randomization for the last 4 year's of follow up was 128 ± 0.8/75 ± 0.3 mmHg for the intensive group, and 137 ± 0.7/81 ± 0.3 mmHg for the moderate group (p< 0.001). There was a strong inverse relationship between ABI and ischemic events, such that patients at the lowest range of ABI had a four-fold increased risk of incurring such an event, of which there were a total of 57 events. There were 3 events in the intensive group and 12 in the moderate group (p= 0.046). Intensive blood pressure control was associated with a marked reduction in the risk of an ischemic event and negated the inverse relationship of ABI and events (figure). This beneficial effect was present with both the calcium-channel blocker and the ACE-inhibitor.




CONCLUSION: Our study demonstrates that intensive blood pressure control may also alter the natural history of PAD in diabetic patients with regard to their risk of ischemic cardiovascular events, independent of the class of medication utilized.

**WOMEN SMOKERS UNDERESTIMATE THE HEALTH RISKS OF SMOKING.** S. Moran[1], G. Glazier[2], K. Armstrong[2]; [1]Massachusetts General Hospital, Boston, MA; [2]University of Pennsylvania, Philadelphia, PA *(Tracking ID #51859)*

BACKGROUND: Women smokers are at increased risk for cardiovascular disease, lung cancer and pulmonary disease, as well as gender specific health consequences such as osteoporosis, cervical cancer, infertility and early menopause. Little is known about women smokers' perceptions of the health-related risks associated with cigarette smoking.
METHODS: Cross-sectional survey of women 53 to 55 years old in a university health system. The survey was designed to assess women's attitudes toward health in the years surrounding menopause. In addition to demographic information and smoking status, subjects were asked to rate their lifetime risk for developing breast cancer, heart disease/heart attack, lung cancer and osteoporosis.
RESULTS: 1191 women completed the survey (response rate 62%). 12% were current smokers, 37% were former smokers and 51% were never smokers. 87% were White, non-Hispanic, 9% were Black, non-Hispanic. A higher proportion of current smokers were non-White($p = 0.017$) and reported lower levels of education and income than never smokers or former smokers($p<0.0001$). Current smokers' ratings of lifetime risk for developing heart disease and lung cancer were higher than the ratings of never smokers or former smokers ($p < 0.001$). There was no difference in perception of lifetime risk for developing breast cancer ($p = 0.570$) or osteoporosis ($p=0.524$) between the three groups. Although current smokers' ratings of lifetime risk for developing heart disease and lung cancer were higher than the ratings of never smokers and former smokers, 60% of current smokers rated their lifetime risk for developing heart disease or lung cancer as average or below average. 75% of current smokers rated their lifetime risk for developing osteoporosis as average or below average. Among current smokers, non-White race was associated with decreased perception of lifetime risk for developing lung cancer (OR 0.22; 95% CI 0.069 – 0.73) and heart disease (OR 0.26; 95% CI 0.079 – 0.84)after multivariate adjustment. Heavy smoking was associated with increased perception of risk for developing lung cancer (OR 5.30; 95% CI 1.41 – 19.86) and heart disease (OR 3.94; 95% CI 0.96 – 16.21), but not osteoporosis. Family history of lung cancer was associated with increased perception of lifetime risk for developing lung cancer (OR 3.06; 95% CI 1.08 – 8.66). Likewise, family history of osteoporosis was the only variable associated with increased perception of osteoporosis risk (OR 5.78; 95% CI 2.32 – 14.41).
CONCLUSION: The majority of peri-menopausal women smokers in this population did not perceive increased personal risk for developing heart disease, lung cancer or osteoporosis. Non-White race was strongly associated with lower perception of risk. This is particularly concerning given the greater burden of smoking-related disease in the African-American population. The findings of this study suggest an opportunity for improvement in smoking risk communication.

**INCREASING DAILY PHYSICAL ACTIVITY AMONG PATIENTS IN THE SOUTH BRONX BY UTILIZING EXERCISE COUNSELING AND PEDOMETERS.** L. O'Connor[1], G. Sacajiu[2]; [1]Albert Einstein College of Medicine, Bronx, NY; [2]Montefiore Medical Center, Bronx, NY *(Tracking ID #51769)*

BACKGROUND: Physical activity reduces morbidity and mortality for several chronic diseases. However, only 22% of adults in the US engage regularly in sustained physical activity. African-Americans, Hispanics, and less affluent individuals perform regular physical activity even less. Some studies have shown that by using a pedometer, in conjunction with counseling, individuals will increase their amount of daily physical activity. We introduced and evaluated the efficacy of this method among those groups of individuals known to be at greatest risk of physical inactivity.
METHODS: Between October 29th, 2001, and November 26th, 2001, every fourth patient in an adult general medical clinic in the South Bronx was asked to enter a 3 month long study on exercise. Exclusion criteria included an inability to walk and age greater than 65. Patients who agreed to enroll were randomized to either exercise counseling alone or exercise counseling with pedometer use. All participants were given a log and asked to record daily the time in minutes spent walking or exercising. Participants assigned to the pedometer group were also asked to record the number of steps measured by the instrument daily. A follow-up survey assessing personal satisfaction and objective fitness outcomes is currently being collected.
RESULTS: Fifty-two patients were asked to participate. Of those, 12 (23%) declined to enroll in the study. The remaining 40 were randomized into 2 groups of 20 patients with similar demographic characteristics. The patients consisted of 80% women, 55% Hispanic, 45% African-American, with a mean age of 45 years, and a mean body weight 175 lbs. At baseline 65% of patients in both groups stated that they preferred walking over other forms of exercise. Initial feedback indicates that the intervention was well received by participants. Data is in the process of being collected and analyzed to determine if patients assigned pedometers exercised more than patients in the control group did.
CONCLUSION: Interest in participating in an exercise study was high among predominantly female Hispanic and African-American patients in a general medical clinic in the South Bronx. Pedometers, affordable and simple to operate, seemed to increase enthusiasm for exercising and provided an objective means for measuring physical activity. In this community, where few resources for physical activity exist and morbidity linked to physical inactivity is highly prevalent, exercise counseling was feasible and effective. Based on initial results, we now plan to promote a clinic wide exercise counseling program with pedometer use to improve the physical and emotional health of all our patients.

**PATIENT SATISFACTION WITH TESTOSTERONE (T) GEL 1% COMPARED TO PREVIOUS ANDROGEN REPLACEMENT THERAPIES: RESULTS OF AN OPEN-LABEL STUDY.** A. Pavlatos[1], S. Faulkner[2], J.K. Anderson[2]; [1]St. Joseph Resurrection Hospital, Chicago, IL; [2]Unimed Pharmaceuticals, Deerfield, IL *(Tracking ID #51197)*

BACKGROUND: Hypogonadism, resulting in decreased muscle mass, strength, bone mass, libido, and potency, may affect up to 4 – 5 million men in the US. Effective T replacement therapies are available and include a topical gel, transdermal patches and intramuscular injection. The goals of this study were to assess patient satisfaction with T gel treatment compared to previous androgen therapies in hypogonadal men, to measure any changes in serum T levels, and to measure the maintainance or enhancement of other benefits (e.g., energy level, mood, sexual function) derived from prior androgen replacement therapy.
METHODS: The ASSERT trial was a large, prospective, open-label study of 8 weeks duration in 839 hypogonadal men. Patients currently receiving T replacement therapy as either injections or patch were eligible to participate. Patients initially completed a satisfaction questionnaire, had their serum T level determined, and received T gel. After 8 weeks of treatment patients returned for their final visit, which included a physical exam, serum T determination, and completion of a satisfaction questionnaire.
RESULTS: After 8 weeks of T gel replacement therapy, hypogonadal men experienced statistically significant ($p \leq 0.05$) changes from baseline in overall satisfaction with the method of testosterone replacement, energy level, mood, sexual desire and sexual function. Serum T levels increased significantly, from 316.6 ng/dL and 312.3 ng/dL to 441.3 ng/dL and 457.2 ng/dL for the previous intramuscular and patch groups, respectively. T gel was well tolerated with no serious adverse events attributed to gel therapy. Application site reactions were reported in 0.7% of patients.
CONCLUSION: Results of this large prospective study demonstrated a significant improvement in patient satisfaction, a significant increase in serum T levels, and an acceptable safety profile with T gel in hypogonadal men previously treated with intramuscular injection or transdermal patch.

**Statistical Significance (*= $p \leq 0.05$) of Change from Baseline in Measures of Patient Satisfaction**

| | Intramuscular | Patch |
|---|---|---|
| Overall Satisfaction | 1.0* | 3.1* |
| Energy | 0.6* | 1.5* |
| Mood | 0.4* | 0.8* |
| Sexual Desire | 0.4* | 1.9* |
| Sexual Function | 0.8* | 2.0* |

**CAN CLINICAL FACTORS PREDICT WHICH ARTHRITIS PATIENTS WILL HAVE UNMET EXPECTATIONS AT A FUTURE VISIT?** J.K. Rao[1], K. Kroenke[2], M. Weinberger[3], L.A. Anderson[1]; [1]Centers for Disease Control and Prevention, Atlanta, GA; [2]Indiana University Purdue University Indianapolis, Indianapolis, IN; [3]University of North Carolina at Chapel Hill, Chapel Hill, NC *(Tracking ID #51308)*

BACKGROUND: Between 15 – 25% of primary care patients report they have one or more unmet expectations after their doctor visits. Prior studies examine associations with unmet expectations within the context of single visits. We present the first longitudinal study of unmet expectations in arthritis patients to determine how well clinical and psychosocial factors (i.e., functional status, helplessness, etc.) can predict unmet expectations at a future visit.
METHODS: Arthritis patients (n = 177) from 6 general rheumatology clinics answered questions on functional status, pain, and time spent with the doctor at baseline, 6, and 12 months (response rate: 6 to 12 months, 86%). At 12 months, survey participants were asked if they had any unmet expectations after their last clinic visit. We examined relationships between unmet expectations at 12 months to clinical status at 6 months, change in clinical status between 6 and 12 months, and time spent with the doctor at 12 months.
RESULTS: One-third of patients reported at least one unmet expectation after their visit. Unmet expectations for information (15%) and for new medications (10%) were most common. Poor functional status and increased pain and helplessness at 6 months, a change in pain level between 6 and 12 months, and perceived short doctor visits at 12 months were correlated (all $p < 0.01$) with unmet expectations. Increased pain (OR: 1.5, 95% CI: 1.2 – 1.7) and helplessness (OR: 1.9, 95% CI: 1.1, 3.3) at 6 months, short doctor visits (OR: 5.8, 95% CI: 2.6 – 13.3) at 12 months, and improved pain (OR: 0.3, 95% CI: 0.1 – 0.9) between 6 and 12 months remained significant predictors of unmet expectations in multivariate logistic regression models.

CONCLUSION: Arthritis patients frequently report one or more unmet expectations after their clinic visit. Attention to the patients' level of pain and sense of helplessness as well as the quality of the time spent with the patient may prevent future reports of unmet expectations.

**STATE MANDATED COVERAGE OF A PREVENTIVE SERVICES VISIT: IS NEW JERSEY'S HWPA MANDATE EVIDENCE-BASED?** S.S. Rathore[1], C.P. Gross[1], H.M. Krumholz[1]; [1]Yale University School of Medicine, New Haven, CT *(Tracking ID #50882)*

BACKGROUND: The recently enacted New Jersey Health Wellness Promotion Act (HWPA) mandates that all non-self-insured health plans provide coverage for an annual preventive services visit and 17 specific prevention interventions for adult beneficiaries. Other states are considering similar legislation. The extent to which the HWPA coverage mandate is consistent with evidence-based prevention recommendations is unclear.
METHODS: We compared the 17 interventions mandated for coverage by HWPA with the recommendations of the US Preventive Services Task Force (USPSTF). The USPSTF recommendations include "A" (good evidence for), "B" (fair evidence for), and "C" (no recommendation for/against a service because of insufficient evidence). For services included in the HWPA and recommended by USPSTF, we compared the recommended age of initiation and frequency. We also evaluated the USPSTF level of evidence for 25 routine, healthy adult screening/counseling interventions that were not included in HWPA.
RESULTS: Eleven of the 17 services mandated for coverage by HWPA were recommended by USPSTF ("A" or "B" recommendation). Of these, only 3 fit USPSTF recommendations exactly: counseling for tobacco use, seat belt use, weight monitoring. Six HWPA services mandated coverage to start at a younger age than recommended by USPSTF: biennial total cholesterol and LDL cholesterol screening (HPWA age 20 vs USPSTF age 35 for men/45 for women), annual mammography (HWPA age 40 vs USPSTF age 50), flexible sigmoidoscopy (HWPA age 45 vs USPSTF age 50), and fecal occult blood test (HWPA age 40 vs USPSTF age 50). Two HWPA services mandated coverage to start later than the USPSTF recommendation: Pap smears (HWPA age 20 vs USPSTF age 18) and blood pressure screening (HWPA age 25 vs USPSTF age 20). Finally, 6 services mandated by HWPA (biennial hemoglobin screening, biennial glucose screening, glaucoma screening, counseling to conduct back exercises, counseling to conduct breast-self examination, and counseling to conduct testicular examination) were not recommended by USPSTF ("C" recommendation). Of the 25 other conditions evaluated by USPSTF but not included in the HWPA, 3 had "A" recommendations (chlamydia screening, child safety seats, physical activity counseling), 8 had "B" recommendations (e.g. alcohol abuse screening, unintended pregnancy counseling), and 14 conditions had "C" recommendations (e.g. screening for depression, osteoporosis).
CONCLUSION: Although considered to be a blueprint for other states' preventive service coverage mandates, New Jersey's HWPA is inconsistent with evidence-based recommendations. A greater effort is needed in order to incorporate evidence into policy for the coverage of preventive services.

**CHANGES IN AWARENESS AND ACCURACY OF SELF-REPORTED CHOLESTEROL AMONG MALE PHYSICIANS.** R.E. Scranton[1], H. Sesso[1], M.R. Stedman[1], J.M. Levenson[1], D.R. Gagnon[1], J.M. Gaziano[1]; [1]Boston VA Health Care System, Boston, MA *(Tracking ID #52037)*

BACKGROUND: During the 80's and 90's, there were many public health initiatives to raise awareness about the importance of cholesterol as a risk factor for cardiovascular disease. However, despite the success of these programs, many people are neither screened for hyperlipidemia or receive appropriate lipid lowering interventions. The aim of our study was to describe how the awareness and accuracy of self-reported cholesterol changed between 1982 and 1997 and evaluate the association between lifestyle behaviors and cholesterol awareness.
METHODS: We established a subgroup of 4,543 men from the Physicians' Health Study (PHS) who provided bloods at baseline in 1982 and again after 14 years of follow-up. At each time point, participants reported their most recent cholesterol level, age, height and weight, tendency to exercise, and tobacco use. We classified physicians as being aware and accurate, aware but inaccurate, or unaware of their cholesterol level. Accuracy was judged by whether the reported cholesterol fell within one standard deviation of the measured cholesterol (±36 mg/dl). We determined differences in mean cholesterol by the awareness categories for pair wise comparisons using Student T-tests and ANOVA for multiple comparisons. Chi-Square tests were used for categorical comparisons.
RESULTS: Awareness and accuracy of self-reported cholesterol increased from 25.4% to 62% ($p < 0.001$), as did being aware but inaccurate 11.5% to 16% ($p = 0.11$), and thus being unaware decreased from 63.2% to 22% ($p < 0.001$). Physicians who were aware but inaccurate were more likely to underestimate their measured cholesterol in 1982 (by 12 mg/dl, $p = 0.001$) and again at follow-up (by 28.5, $p < 0.001$). Physicians that were aware and accurate had lower mean measured cholesterol levels compared to those who were aware but inaccurate ($p < .05$). Physicians in 1982 tended to be either aware and inaccurate or unaware if they were, obese ($p = 0.004$), current tobacco users ($p < 0.001$), or sedentary ($p < 0.001$). This association was also present at follow-up for those who were sedentary ($p < 0.001$) or aged ≤65 years ($p = 0.004$).
CONCLUSION: In our study, the proportion of physicians who were aware of their cholesterol increased significantly over time. However, certain groups remained unaware at follow-up. Also, those who were inaccurate tended to underestimate their true cholesterol. Because individuals who were aware and accurate had lower cholesterol levels, continuation of our educational efforts to raise cholesterol awareness particularly among high risk or "resistant" populations is essential.

**THE INFORMATION NEEDS OF MEN REGARDING PROSTATE CANCER SCREENING AND THE EFFECT OF A SIMPLE DECISION AID.** S.L. Sheridan[1], K. Felix[1], M.P. Pignone[1], C. Lewis[1]; [1]University of North Carolina at Chapel Hill, Chapel Hill, NC *(Tracking ID #52117)*

BACKGROUND: The information that men need to make a decision about prostate cancer screening with the prostate specific antigen (PSA) blood test is unknown.
METHODS: We developed a four-part pamphlet decision aid about prostate cancer screening and tested it in men, ages 45 – 85, who were attending a university internal medical clinic for routine care. Each patient completed an initial questionnaire assessing baseline knowledge and perceptions about prostate cancer and prostate cancer screening. A research assistant then verbally reviewed with each man the four components of the decision aid — (1) an introduction to prostate cancer screening and the epidemiology of prostate cancer; (2) a description of the PSA test and its interpretation; (3) a description of prostate biopsy and the treatment options if prostate cancer is present; and (4) two balance sheets intended to help clarify preferences for screening. After each component, men were asked to rate their interest in being screened within the next year on a 5-point Likert scale (1 or 2 = not interested in being screened, 3 = undecided, 4 or 5 = interested in being screened). After the last component, men also were asked to report if they had adequate information to make a decision.
RESULTS: 190 men (62% of those eligible and approached) completed our survey. Their mean age was 60. 71% were white, 26% were black, 20% had any family history of prostate cancer, and 71% reported that they had previously been screened for prostate cancer. Before viewing the decision aid, 76% reported that they were interested in being screened in the next year; 7% reported they had no interest in being screened; and 17% reported they were undecided about screening. After viewing the entire decision aid, the proportion of men who reported that they knew enough to make a screening decision increased from 63% to 87% ($p < 0.001$). Additionally, 18% of men reported that their interest in being screened changed: 6% became more interested; 9% became less interested; and 3% became indecisive. After each component of the decision aid, roughly equal proportions of men experienced a change in their interest to be screened (12%, 7%, 7%, and 9% after components 1 , 2, 3, and 4, respectively).
CONCLUSION: A simple decision aid, which can be reviewed in 10 minutes, increased by 24 percentage points the proportion of men who reported sufficient information to decide about screening. It also changed 18% of men's interest in screening. Information from each decision aid component affected men's interest.

**ONE YEAR FOLLOW-UP OF SMOKERS, BY LEVEL OF INTEREST IN QUITTING.** S.E. Sherman[1], A.B. Lanto[1], B.F. Simon[1], S. Reynolds[1], L.V. Rubenstein[1], E.M. Yano[1]; [1]VA Center for the Study of Healthcare Provider Behavior, Sepulveda, CA *(Tracking ID #52376)*

BACKGROUND: The dominant model for smoking cessation splits smokers into different stages, based on their level of interest in quitting. We assessed the likelihood that veterans who smoke will quit over time, by level of interest in quitting.
METHODS: As part of an organization-level smoking cessation guideline implementation study, we interviewed 1,942 smokers from 18 Southwestern Veterans Administration (VA) facilities during March-December 2000 and again 12 months later. The survey covered smoking habits/history and health and functional status using previously validated items. We split smokers into stages based on their level of interest in quitting as follows: "hard core" (never expect to quit); "precontemplation" (no intent to quit within next 6 months); "contemplation" (intend to quit within next 6 months); and "preparation" (intend to quit within next month). We assessed smoking status at 12 months follow-up. Patients who reported no cigarettes in the 30 days prior to follow-up were considered to have quit smoking. Completed follow-up surveys were available for 59%, while 6% refused, 10% did not respond, 16% had an incorrect telephone number, and 9% were still pending.
RESULTS: At baseline, 13% were hard core, 42% were in precontemplation, 33% were in contemplation, and the remaining 13% were in preparation. 12-month follow-up showed that 9% had quit smoking, which varied by baseline stage: hard core 7.3%, precontemplation 6.3%, contemplation 9.9%, preparation 17.2% ($p = 0.001$). Overall, 50% reported at follow-up that they had tried to quit in the past year, which also varied by baseline stage: hard core 23%, precontemplation 43%, contemplation 59%, preparation 77% ($p < 0.001$). Similarly, 12% reported attending a smoking cessation program, which also varied by baseline stage, ranging from 6.5% for hard core smokers to 19% for those in the preparation stage ($p < 0.001$). There was no significant difference among the stages (as measured at baseline) in receiving advice to quit smoking, nor was there any difference in the use of nicotine patches or gum over the following year. Among continuing smokers, stage was only moderately constant, with about half the subjects in the same stage 12 months later. 21% moved "up" at least one stage, noting more intent to quit. 30% moved "down" at least one stage, indicating less intent to quit.
CONCLUSION: Among veterans who smoke, 50% tried to quit over 12 months of follow-up, and 9% of the entire group succeeded in quitting. Both quit attempts and actual quitting varied by baseline level of interest in quitting, with quit attempts ranging from 23 to 77% and successful quitting from 6.3% to 17.2%. Level of interest in quitting varied considerably over 12 months, with only half the smokers in the same stage one year later. Regardless of patients' stated intent to quit, this analysis provides firm support for the clinical advice to intervene with all smokers. Our results identified many opportunities to assist them in quitting.

**THE VA LOW CARBOHYDRATE INTERVENTION DIET (VALID) STUDY.** L. Stern[1], N. Iqbal[2], K. Chicano[1], D. Daily[1], J. Mcgrory[1], T. Williams[1], F.F. Samaha[1]; [1]Philadelphia Veterans Affairs Medical Center, Philadelphia, PA; [2]University of Pennsylvania Hospital, Philadelphia, PA *(Tracking ID #51060)*

BACKGROUND: Despite the recent popularity of low carbohydrate (carb) diets, there have not been any long term prospective randomized controlled studies to assess relative safety and efficacy of recommending this diet.
METHODS: We prospectively randomized 82 severely obese subjects to either dietary instruction on a 30 gm/day carbohydrate diet or on a low fat/low calorie (500 calorie/day deficit) diet. Subjects were asked to attend 4 consecutive, 2 hours weekly, dietary teaching sessions, followed by monthly support group sessions for a total of 6 months.
RESULTS: Twenty-four (29%) of the 82 patients declined to return for 6-month data collection, leaving 58 patients (of which 14 were diabetic) with available data: see table.
CONCLUSION: Severely obese subjects receiving instruction on a carbohydrate-restricted diet achieved greater weight (wt) loss by 6 months when compared to subjects receiving instruction on a low fat/calorie restricted diet. This favorable change occurred without an

unfavorable change in cholesterol or LDL. In non-diabetics there was a significantly greater decrease in triglycerides (TG) for patients instructed on a carb restricted diet and a trend toward a greater decrease in fasting insulin level

Table

| Variables (Data Presented as Means) | Low Carb (n = 28) | Low Fat (n = 30) | P Value (Differences Between Diets |
|---|---|---|---|
| Baseline Weight, lbs | 293.2 | 295.1 | ns |
| Wt Change (6 mo) lbs | −20.4 | −6.8 | 0.002 |
| Cholesterol Change (6 mo) mg/dl | −1.3 | +4.7 | ns |
| HDL Change (6 mo) mg/dl | −0.6 | −1.4 | ns |
| LDL Change (6 mo) mg/dl | −1.8 | −6.4 | ns |
| TG Change (6 mo) mg/dl (non-DM) n=33 | −65 (n = 20) | −8.0 (n = 24) | 0.02 |
| Insulin Change (6mo) (non-DM) | −8.9 (n = 20) | −1.1 (n = 24) | ns |

**DIET COMPOSITION IN THE VA LOW CARBOHYDRATE INTERVENTION DIET (VALID) STUDY.** L. Stern[1], N. Iqbal[1], K. Chicano[1], D. Daily[1], J. Mcgrory[1], T. Williams[1], M. Williams[1], F.F. Samaha[1]; [1]Philadelphia Veterans Affairs Medical Center, Philadelphia, PA *(Tracking ID #51061)*

BACKGROUND: Severe carbohydrate-restricted diets have been criticized for an unsafe de-emphasis on limiting total fat and calorie intake. However, there has been no prospective randomized trial to assess the actual diet composition of subjects who are instructed to follow a carbohydrate-restricted diet.
METHODS: We prospectively randomized 82 severely obese (mean body mass index = 42.8 kg/cm2) subjects to dietary instruction either on a 30-gm/day-carbohydrate diet or on a low fat/low calorie (500 calorie/day deficit)-diet. Subjects were asked to attend four consecutive, 2-hours weekly, dietary teaching sessions, followed by monthly support group sessions for a total of 6 months. Diet composition was assessed by 24-hour recall at baseline and at 6 months. Validity of diet recalled was assessed by correlation with weight changes.
RESULTS: Twenty-four (29%) of the 82 patients discontinued the study and declined to return for 6-month data collection. Of the 58 remaining patients, 10 declined a 24-hour dietary recall, leaving 48 subjects with available data. There was significant correlation between weight loss and reported change in total calorie intake (p = 0.03), carbohydrate intake (p = .007), and protein intake (p = 0.05), but not change in fat intake.
CONCLUSION: Severely obese subjects receiving instruction on a carbohydrate-restricted diet successfully reduced their carbohydrate consumption. However, they also appear to self-limit their total fat, saturated fat, and protein intake. The result is total caloric reduction, which likely accounts for the reported success in weight loss following a low carbohydrate diet.

Table

| Variables (As 24 Hour Means) | Low Carb (n = 26) | Low Fat (n = 22) | P Value (Differences Between Diets) |
|---|---|---|---|
| Change in Caloric Intake, cal | −36% | −16% | 0.10 |
| Change in Carb Intake, gm | −51% | −19.3% | 0.08 |
| Change in Total Fat Intake, gm | −21.9% | +20% | 0.18 |
| Change in Saturated Fat Intake, gm | −30.8% | −2.3% | 0.14 |
| Change in Protein Intake, gm | −16.3% | −11.3% | 0.56 |

**PREDICTORS OF DESIRE FOR SCREENING EKG.** R.E. Swaney[1], J.F. Steiner[1]; [1]University of Colorado Health Sciences Center, Denver, CO *(Tracking ID #51879)*

BACKGROUND: Primary care patients and the public at large express interest in receiving a variety of screening tests, many of which are of unproven value. Little is known about what fuels interest in unproven screening. The goal of this study was to identify factors associated with desire for screening EKG, a test not generally recommended.
METHODS: We performed a random sample telephone survey of members of a large metropolitan HMO, aged 40–65 and without previously diagnosed coronary artery disease. Participants were asked how important it was to have a periodic EKG, even if they were not having symptoms. We collected data on health status; cardiac risk factors; cardiac symptoms; general desire for screening tests; perceived susceptibility to heart disease; prior receipt of, perceived efficacy of, and receipt of advice to have screening EKG; perception of EKG screening as usual practice; and demographics. Bivariate and multivariate analyses were performed to identify independent predictors of desire for EKG.
RESULTS: Response rate was 68% (N = 701). 37% of the population felt that screening EKG was very important. Bivariate analyses revealed the following factors to be associated with desire for screening: lower health status; high cholesterol; family history of coronary artery disease; high fat diet; higher body mass index; symptoms; general desire for screening; perceived susceptibility; previous screening; belief that screening is efficacious, protective, and usual; recommendation to be screened; non-white race; and lower educational status. The following factors were independently associated with the outcome in logistic regression analyses: general desire for screening, perceived susceptibility, belief that screening is protective, recommendation to be screened, and non-white race. A model containing these variables was highly predictive of desire for screening (−2 Log L 925, Wald statistic 142, $p < 0.0001$), with the likelihood ratio most influenced by perceived susceptibility. Cardiac risk factors, symptoms, belief that screening is efficacious and usual, previous screening, gender, age, marital status, and income were not predictive of desire for screening in the multivariate analyses.
CONCLUSION: In general, subjective rather than objective influences drive desire for EKG screening. Interest in unproven screening may not respond to provision of objective criteria; communication that empathizes with risk perception will likely be required.

**DOES ACTIVE SURVEILLANCE IMPROVE CASE FINDING? THE EXAMPLE OF HUMAN WEST NILE VIRUS ILLNESS IN NEW JERSEY, 2000.** C.G. Tan[1], F.E. Sorhage[1], E.A. Bresnitz[1]; [1]New Jersey Department of Health and Senior Services, Trenton, NJ *(Tracking ID #51882)*

BACKGROUND: Since its identification in New York in 1999, West Nile virus (WNV) appears to have become endemic in the northeastern U.S. No human cases of WNV were detected in New Jersey by passive surveillance in 1999, although 62 cases were detected in nearby New York counties. In 2000, the New Jersey Department of Health and Senior Services (NJDHSS) implemented active surveillance to detect human WNV cases.
METHODS: Active hospital-based surveillance identified patients admitted with aseptic meningitis or encephalitis in 42 hospitals in six New Jersey counties. Passive surveillance was conducted by requesting that medical care providers report suspected cases to the NJDHSS. For patients who met WNV testing criteria, the NJDHSS tested for presence of IgM and IgG by enzyme immunoassays. We compared results from the two systems according to number of patients tested and WNV cases detected.
RESULTS: Active surveillance yielded a 71.4% median weekly response rate from participating hospitals. Ninety-nine meningitis and encephalitis cases were identified through active surveillance; 134 were reported through passive surveillance. Fifty-five New Jersey residents met WNV testing criteria. Five of 44 passively reported residents tested positive whereas one of 11 residents identified solely through active surveillance tested positive.
CONCLUSION: The majority of patients who tested positive for WNV in New Jersey were identified through passive surveillance. Active surveillance neither achieved complete hospital participation nor captured all hospital-admitted meningitis and encephalitis cases. Active surveillance may not be as effective as passive surveillance for detecting WNV cases.

**A PREVENTABLE OUTBREAK OF PNEUMOCOCCAL PNEUMONIA AMONG UNVACCINATED NURSING HOME RESIDENTS, NEW JERSEY, 2001.** C.G. Tan[1], S. Ostrawski[1], E.A. Bresnitz[1]; [1]New Jersey Department of Health and Senior Services, Trenton, NJ *(Tracking ID #52132)*

BACKGROUND: Invasive pneumococcal infection has a 30%–40% case-fatality rate among elderly persons but is largely preventable with pneumococcal polysaccharide vaccine (PPV) use. We investigated an outbreak of invasive pneumococcal infection among residents of a nursing home in April 2001 to characterize risk factors, determine why the outbreak may have occurred, and implement control efforts.
METHODS: We conducted a case-control study at a 114-bed nursing home facility. We defined a case-patient as a resident of the nursing home who was hospitalized with febrile respiratory illness onset during April 1–26 and with radiographic findings consistent with pneumonia and sputum specimens positive for diplococci or blood cultures positive for Streptococcus pneumoniae. Blood culture isolates were serotyped. Two unmatched controls per case-patient were selected randomly from remaining residents without respiratory symptoms. To investigate compliance with state regulations requiring nursing homes to offer PPV to eligible residents, 853 long-term care facilities (LTCFs) statewide were surveyed.
RESULTS: Nine case-patients were identified; median age was 86 years (range 78–100 years). Median age of controls was 86 years (range 58–95 years). No case-patients versus nine (50%) controls received PPV before the outbreak (odds ratio = 0; 95% confidence interval = 0, 0.7). Recent antibiotic use, pneumonia history, and physical functioning were not associated with illness. Prior to the outbreak, 53 (49%) of 108 residents had received PPV. Illness attack rate among all nonvaccinated residents was 16% versus 0 among vaccinated residents. S. pneumoniae serotype 14, included in PPV, was isolated from blood cultures of seven case-patients. Of 361 (42%) LTCFs that replied to the survey, 28 (8%) did not comply with state immunization regulations.
CONCLUSION: Outbreaks of pneumococcal infection occur in LTCFs with low vaccine coverage. Implementing standing orders programs, enforcing regulations, documenting vaccinations, and providing education may increase coverage among nursing home residents.

**IMPACT OF DEPRESSION ON NICOTINE WITHDRAWAL SYMPTOMS AND EARLY RELAPSE IN SMOKERS HOSPITALIZED WITH CARDIOVASCULAR DISEASE.** A.N. Thorndike[1], N.A. Rigotti[1], S. Regan[1], D.E. Singer[1]; [1]Massachusetts General Hospital and Harvard Medical School, Boston, MA *(Tracking ID #51262)*

BACKGROUND: Hospitalization for cardiovascular disease (CVD) represents a unique opportunity for smoking cessation. Like smoking, depression occurs frequently among CVD patients and increases mortality. In outpatient settings, depression is associated with lower smoking cessation rates. We determined the impact of depression on the smoking behavior and early relapse of smokers hospitalized with CVD.
METHODS: We analyzed data on 169 smokers hospitalized with CVD who are enrolled in an ongoing double-blind, randomized controlled trial of bupropion for smoking cessation. All smokers received smoking counseling in the hospital and by telephone for follow up. Depression (Beck Depression Inventory [BDI]) and nicotine withdrawal symptoms (Hughes scale) were assessed at baseline in the hospital. Smoking status was assessed at 2 weeks post-discharge. We used linear and logistic regression to determine if depression predicted withdrawal symptoms and 2-week relapse, adjusting for sex, race, cigarettes/day, and Fagerstrom score.
RESULTS: At baseline, 22% of smokers scored > 16 on the BDI (current depression). Depressed smokers were more likely to be female ($p = .02$) and non-white ($p < .001$). Depressed smokers had more withdrawal symptoms at baseline (Hughes score 10.6 vs. 7.3, adjusted $p = .005$) and were less confident than non-depressed smokers they would be quit at 1 month ($p = .04$), but depressed and non-depressed smokers did not differ on daily cigarette

consumption, Fagerstrom scores, or cravings. Depressed smokers were more likely than non-depressed smokers to resume smoking 2 weeks after discharge (54% vs. 22%; adjusted OR = 3.68, p = .007).
CONCLUSION: Depressed smokers hospitalized with CVD are at higher risk of early relapse to smoking, perhaps because they have more intense withdrawal symptoms and lower self-efficacy for quitting than the non-depressed smokers. It is important to identify comorbid depression in this population because they may require more intensive interventions to achieve abstinence.

**UNDIAGNOSED HIV INFECTION IN THE GENERAL MEDICINE AND TRAUMA SERVICES OF TWO URBAN HOSPITALS.** B.J. Turner[1], K. Brady[1], S.D. Berry[1], M. Weiner[1]; [1]University of Pennsylvania, Philadelphia, PA *(Tracking ID #52315)*

BACKGROUND: The Centers for Disease Control and Prevention recommended in 1993 that HIV testing should be routinely offered to inpatients in areas where the HIV prevalence in hospitalized patients is greater than 1 per 1000. This recommendation has largely been ignored. Few data are presently available regarding the prevalence of undiagnosed HIV in urban hospitals to guide efforts to initiate and fund programs for inpatient HIV testing. To this end, we conducted an unlinked HIV seroprevalence study in two Philadelphia hospitals.
METHODS: We obtained excess sera for consecutive patients aged < 65 years admitted to the general internal medicine (GIM) service of both hospitals and to the trauma center service of one hospital. Specimens were collected from June 16 to July 19, 2001 for the GIM and trauma services at one hospital and from July 7 to Sept. 3, 2001 for the GIM service at the second hospital. Administrative and demographic data were sought for all subjects. Inpatient attendings during the study period were asked to record any known HIV diagnosis among discharge diagnoses. Specimens for persons with an HIV discharge diagnosis were removed before testing the remaining specimens with HIV-1 enzyme immunoassay and Western Blot confirmation. Linkage between patient data and study numbers were removed before obtaining the results of HIV testing to insure anonymity.
RESULTS: In the study period, 619 patients had 668 admissions to the study services. We obtained excess sera for 382 unique patients (62%) of whom 16% were admitted to the trauma service, 66% to the GIM service at the first hospital and 22% to the GIM service at the second hospital. Of these 382 patients, 46% were women, 74% Black, and 23% White. The average age was 45.1 years. 15 (3.9%) patients had known HIV infection. Of the remaining 367 patients without known HIV, 6 (1.6%) tested HIV positive.
CONCLUSION: Because over 7000 patients aged <65 years are admitted to these services annually, we estimate that approximately 110 inpatients on these services may have undiagnosed HIV infection annually. Our data offer support for systematic efforts and financial support for HIV testing of inpatients on GIM and trauma services at two Philadelphia hospitals.

**PROMOTING USE OF COLON CANCER SCREENING TESTS: RESULTS OF A CONTROLLED INTERVENTION.** J.M. Walsh[1], J. Terdiman[1], E.J. Perez-Stable[1]; [1]University of California, San Francisco, San Francisco, CA *(Tracking ID #51103)*

BACKGROUND: To assess whether an intervention targeting physicians and their patients can increase rates of colon cancer screening.
METHODS: We performed a randomized clinical trial with community physicians who were part of a large medical group. Randomization was stratified based on physician group size. All physicians were invited to educational seminars about current recommendations for colon cancer screening, and received written handouts about colon cancer screening. Physicians in the intervention group received "academic detailing" which was a one on one interaction targeting those factors that a particular physician described as barriers to colon cancer screening. Eligible patients of intervention group physicians (aged 50 – 74 and had not been recently screened for colon cancer) received a personalized letter from their physician recommending colon cancer screening, an educational brochure addressing commonly asked questions and a packet of fecal occult blood cards. Three outcomes were measured after 6 months and included 1) receipt of fecal occult blood testing (FOBT) in the past two years, 2) receipt of flexible sigmoidoscopy (SIG) or colonoscopy (COL) in the previous 5 years and 3) receipt of any colon cancer screening (ANY).
RESULTS: 96 physicians were enrolled in the study: 52 were randomized to the intervention (INT) group and 44 to the control (CON) group. Number of eligible patients are described in the table. Changes in screening rates were compared using paired t tests. For all 3 outcomes, there was a slightly greater increase in the INT group at 6 months.
CONCLUSION: This intervention resulted in a modest increase in colon cancer screening. It is possible that the effect of the intervention was minimized due to an increasing national awareness of the importance of colon cancer screening during the time period of the study. It is also possible that longer follow-up may result in higher rates of screening. The results of this study suggest that future research should focus on other innovative methods to increase rates of colon cancer screening.

| | INT | | CON | | P Value |
|---|---|---|---|---|---|
| | Baseline | 6 Months | Baseline | 6 Months | |
| FOBT (n = 10,111) | 37.1% | 45.1% | 37.0% | 44.6% | <0.05 |
| SIG/COL (n = 3,986) | 45.1% | 50.2% | 38.0% | 41.3% | <0.05 |
| ANY (n = 11.173) | 53.8% | 61.2% | 51.1% | 58.1% | <0.05 |

**COMMUNITY PHYSICIANS KNOWLEDGE AND ATTITUDES ABOUT COLON CANCER SCREENING.** J.M. Walsh[1], E.J. Perez-Stable[1]; [1]University of California, San Francisco, San Francisco, CA *(Tracking ID #51132)*

BACKGROUND: To assess current knowledge, attitudes and misconceptions about colon cancer (CRC) screening among community-based primary care physicians.
METHODS: We mailed a survey to primary care physicians who were participants in a study to promote colon cancer screening. Participants were asked to complete a questionnaire which requested information about demographics, current CRC screening practice patterns, knowledge of current CRC screening recommendations, test characteristics of the screening tests, and attitudes about the importance and use of CRC screening tests and other cancer screening tests.
RESULTS: Sixty-seven of 96 physicians (response rate 70%) completed the questionnaire. Respondents were on average 48 years old (Range 32 – 79) and the mean year of medical school graduation was 1979 (S.D. = 14). Respondents reported that 49% of their patients were age 50 and older, and that 59% were Caucasian, 10% African American, 12% Latino, 19% Asian and 12% other. Compared to other cancer screening tests, physicians rated the importance of CRC screening as 85 (S.D. 20) on a scale of 0 – 100. The majority of physicians reported that they screened for CRC according to current recommendations: 76% reported using annual fecal occult blood tests (FOBT), 72% reported using sigmoidoscopy (SIG) every 5 years, 75% reported annual FOBT and SIG every 5 years and 48% reported using colonoscopy every 10 years. Most (81%) physicians correctly responded that screening with FOBT has been associated with a reduction in CRC mortality. Misconceptions reported by physicians included using a CBC every 1 – 2 years to screen for CRC (30%), belief that screening colonoscopy is associated with a reduction in CRC mortality (77%) and belief that screening barium enema is associated with a reduction in CRC mortality (40%). Although 100% of physicians reported modifying their screening recommendations because of a family history of CRC, only 73% reported modifying screening recommendations because of a family history of an adenomatous polyp. Only 11% of respondents stated that discussing CRC screening options with patients was confusing.
CONCLUSION: Although most physicians think that CRC screening is important and most report using recommended screening options, misconceptions and inappropriate screening practices persist. Additional physician education may be needed in order to optimize appropriate use of CRC screening tests.

**SCREENING FLEXIBLE SIGMOIDOSCOPY: OLDER AGE INCREASES LIKELIHOOD OF POOR BOWEL PREPARATION AND INCOMPLETE EXAMS.** L.C. Walter[1], P. De Garmo[2], K.E. Covinsky[1]; [1]University of California, San Francisco, San Francisco, CA; [2]Oregon Health Sciences University, Portland, OR *(Tracking ID #51066)*

BACKGROUND: The goals of this study were to determine age group differences in the rates of poor bowel preparation (prep) and incomplete exams for screening flexible sigmoidoscopy.
METHODS: We used a national endoscopy database (Clinical Outcomes Research Initiative, CORI) to determine the rate of poor bowel prep and incomplete exams for 35,617 persons who underwent outpatient screening flexible sigmoidoscopy between 4/97 – 10/01. 475 endoscopists from 29 states entered data about sigmoidoscopies performed into the database. Endoscopists rated bowel prep as poor if a large amount of fecal residue interfered with the reliability of the exam. Endoscopists also recorded the maximum depth of scope insertion. Exams with depths of insertion < 60 cm were defined as incomplete. Patient demographic characteristics, American Society of Anesthesiologists (ASA) class, region of the country, and practice setting were recorded at the time of sigmoidoscopy. Odds of a poor bowel prep and odds of an incomplete exam were calculated for each age group using multivariable logistic regression models.
RESULTS: 64% were male and 94% were ASA class I or II. 49% had flexible sigmoidoscopy performed in a private practice setting, 15% at a university and 36% at a Veterans Administration medical center. This cohort consisted of 20,385 persons aged 50 – 64 years (yrs), 10,013 aged 65 – 74 yrs, 4,647 aged 75 – 84 yrs, and 572 aged 85 yrs or more. The likelihood of poor bowel prep increased with advancing age: 5% for ages 50 – 64 yrs, 7% for ages 65 – 74 yrs, 10% for ages 75 – 84 yrs, and 16% for ages 85 yrs or more (P < .001). Age remained independently associated with poor bowel prep after adjustment for gender, ASA class and the region and setting of the practice. Adjusted odds ratios (OR) for poor bowel prep and 95% confidence intervals were 1.3 (1.2 – 1.5) for ages 65 – 74 yrs, 1.8 (1.6 – 2.0) for ages 75 – 84 yrs, and 3.1 (2.4 – 4.0) for ages 85 yrs or more. The percentage of incomplete exams also increased with advancing age: 41% for ages 50 – 64 yrs, 47% for ages 65 – 74 yrs, 52% for ages 75 – 84 yrs, and 61% for ages 85 yrs or more (P < .001). Adjusted ORs for incomplete exams were 1.2 (1.1 – 1.2) for ages 65 – 74 yrs, 1.4 (1.3 – 1.5) for ages 75 – 84 yrs and 2.1 (1.8 – 2.6) for ages 85 yrs or more.
CONCLUSION: Although flexible sigmoidoscopy is often used to screen older adults for colorectal cancer, advancing age increases the likelihood of poor bowel prep and incomplete exams. Reduced depth of insertion and poor bowel prep decrease the sensitivity of finding adenomas and cancers. This decreased sensitivity should be considered in cost-effectiveness analyses of screening flexible sigmoidoscopy in older adults. Further study of the performance characteristics and burdens of flexible sigmoidoscopy in older adults is required for optimal screening recommendations.

**OBESITY AND COLON CANCER SCREENING: THE INFLUENCE OF SEX AND RACE.** C.C. Wee[1], E.P. Mccarthy[1], R.B. Davis[1], R.S. Phillips[1]; [1]Beth Israel Deaconess Medical Center, Harvard Medical School, Boston, MA *(Tracking ID #50871)*

BACKGROUND: Studies show that obese women are less likely to report breast and cervical cancer screening. Moreover, disparities by weight may be more pronounced in white than black women. We examined the relationship between obesity and colon cancer screening among men and women nationally.
METHODS: We used the 1998 National Health Interview Survey, a nationally representative in-person household survey. We used logistic regression to examine the relationship between body mass index (BMI) and fecal occult blood testing (FOBT) in the last year (yr) and proctoscopy (sigmoidoscopy) in the last 5 yrs among men and women aged 50 – 75 yrs. We adjusted for age, race, marital status, education, region, number of doctor visits, insurance type, usual source/provider of care, and illness burden (hospital days, health status, comorbid conditions and mobility impairments). We then stratified analyses by sex and race (black or

white). We used SUDAAN to account for the sampling design and weighted all results to reflect population estimates.
RESULTS: Among 12,024 eligible adults, the annual rate for FOBT was 42% overall, 44% in men, and 41% in women. The rate of sigmoidoscopy in the last 5 yrs was 29% overall, 34% in men, and 24% in women. FOBT did not differ between normal weight (BMI 18.5 – 24.9) and higher weight adults overall or by sex or race before or after adjustment. Compared to men overall, however, women were significantly less likely to undergo FOBT [AOR 0.87(95% CI 0.78 – 0.96)] and sigmoidoscopy [AOR 0.61(0.55 – 0.68)]. Sigmoidoscopy use was not substantially lower with higher BMI in all subgroups except in white women where there was a trend towards lower sigmoidoscopy use with higher BMI (see table).
CONCLUSION: Colon cancer screening rates are low nationally. Moreover, women are screened less often than men. Obesity does not appear to be a barrier to screening except perhaps among white women. Interventions are needed to increase colon cancer screening, particularly among women.

**Odds Ratio (95% CI) for Sigmoidoscopy Use by BMI Compared to Normal Weight Women**

| | BMI 25 – 29.9 | 30 – 34.9 | 35 – 39.9 | >40.0 |
|---|---|---|---|---|
| White Women | | | | |
| Unadjusted | 1.13 (0.94 – 1.34) | 0.90 (0.73 – 1.11) | 0.87 (0.61 – 1.25) | 0.79 (0.46 – 1.37) |
| Adjusted | 1.06 (0.88 – 1.28) | 0.77 (0.61 – 0.98) | 0.78 (0.53 – 1.15) | 0.66 (0.35 – 1.25) |
| Black Women | | | | |
| Unadjusted | 1.22 (0.75 – 1.99) | 1.27 (0.73 – 2.20) | 1.01 (0.49 – 2.08) | 1.53 (0.64 – 3.63) |
| Adjusted | 1.26 (0.75 – 2.12) | 1.07 (0.57 – 2.00) | 0.80 (0.35 – 1.85) | 1.09 (0.99 – 1.05) |

**FAILURE TO UNDERGO A SCHEDULED COLONOSCOPY OR FLEX SIG: ASSOCIATION WITH PATIENTS' APPOINTMENT KEEPING BEHAVIOR.** M.G. Weiner[1], C.P. Yang[1], B.J. Turner[1]; [1]University of Pennsylvania, Philadelphia, PA *(Tracking ID #51297)*

BACKGROUND: Efforts to promote colon cancer screening have largely focused on reminding physicians to refer patients for appropriate testing. However, patient failure to keep appointments for scheduled tests may also contribute to the low rate of colon cancer screening in the U.S. We examined the rate and predictors of patients failing to complete a scheduled colonoscopy or flexible sigmoidoscopy (FS).
METHODS: In a large Philadelphia health care system, we examined the arrival status of all colonoscopies and FSs scheduled from March 1999 through February 2001. To examine the association between adherence to all doctor visits over a two-year period with completing a scheduled endoscopic procedure, we studied only patients with at least 5 scheduled appointments to a health care system physician in this period. "Bumped" endoscopic procedures and physician visits were excluded from analysis because they were attributable to the physician. Using logistic regression, we examined two outcomes: 1) completing the first scheduled test; 2) among non-completers, test completed within 6 months after the first scheduled test. Our key independent variable was the proportion of all doctor visits in two years that were kept as indicated by an arrived vs. missed or canceled status. Other covariates included race, age, gender, income estimated from the median household income for the patient's census tract, and number of all physician visits scheduled. Continuous variables were examined in quartiles.
RESULTS: Of 12,736 patients with at least one scheduled colonoscopy or FS, 49.2% did not keep the first appointment (non-completers). Of 6,263 non-completers, 64.3% did not complete the procedure in our system within 6 months of the first missed test. The adjusted odds ratio (AOR) of completing the first scheduled test rose with the proportion of all physician visits kept (AOR 6.61, CI 5.85 – 7.47 when the physician visit arrival rate (ARR) was >80%; 3.50, 95% CI 3.17- 3.88 for ARR = 71 – 80%, 2.13, CI 1.93-2.34 for ARR = 61-70% vs. ARR < 60%) and was lower for Blacks vs. Whites (AOR 0.88, CI 0.78- 0.99) and for persons in the lowest vs. highest income quartile (AOR 0.81, CI 0.71 – 0.93). Among non-completers, AOR of having a colonoscopy or FS within 6 months of the first missed appointment was less strongly associated with proportion of all physician visits kept (AOR 0.86, CI 0.69 – 1.05 for >80%; 1.30, CI 1.11 – 1.50 for 71 – 80%; 1.31, CI 1.15 – 1.49 for 61 – 70% vs. <60%) but more strongly with race (AOR 0.78, CI 0.66 – 0.92 for Blacks and 0.51, CI 0.29 – 0.86 for Asians vs. Whites), income (AOR 0.66, CI 0.55 – 0.81 for lowest vs. highest quartile), and gender (AOR 0.83, CI 0.76 – 0.94 for women vs. men).
CONCLUSION: Patients' physician appointment keeping behavior was strongly associated with keeping the first scheduled colonoscopy or FS appointment, but among noncompleters, patient race, income, and gender were more strongly associated with the odds of completing a subsequently scheduled endoscopic procedure within 6 months.

**HEALTH PROFILE OF AN URBAN, LOW-INCOME CLINIC.** K. Winfrey[1], W.P. Fisher[2], K.B. Desalvo[1]; [1]Tulane University, New Orleans, LA; [2]Louisiana State University Medical Center at New Orleans, New Orleans, LA *(Tracking ID #51482)*

BACKGROUND: The Healthy People Consortium has developed several health and wellness objectives that organizations can use to evaluate the health status of their patients to develop wellness programs. We surveyed patient's health related to the Health People 2000 goals in an urban university medical clinic.
METHODS: The Wellness '99 Survey was developed in collaboration with the LSU School of Public Health. It was designed to measure behavioral patterns, knowledge and perceptions of health, and utilization rates of preventive services. Trained researchers surveyed a convenience sample of patients at an academic general medicine clinic that serves primarily indigent, African-American patients without health insurance.
RESULTS: 218 patients were surveyed. The instrument reliability was .78. The majority of our study population was African-American (81%), female (76%), and with an income less than $10,000 (61%). 81% had an education level equivalent to high school graduate/GED or less. The prevalence of hypertension and diabetes was 55% and 43%, respectively. The prevalence of Tobacco and EtOH use was 25% and 23%, respectively. Many respondents (12%) had witnessed a violent crime within the past 6 months and 43% had a friend or family member that had been murdered. 87% reported receiving a mammogram within the past 2 years which was above the national (60.6%) and state (58.5%) rates according to the 1999 BRFSS data. Lifetime clinical breast exam (81.9%) was comparable to the national (89%) and state (84%) rates. 84% reported receiving a PAP smear within the past 2 years. Although the majority of patients (86%) knew that being overweight was a health risk, the mean BMI was 31.8kg/mm. More than half (54%) of respondents reported exercising 3 days per week. The majority (62%) believed the state of things in their life was excellent and 75% believed that they had the important things in life.
CONCLUSION: The low-income, minority patients in this survey had high rates of preventive care. They were also savvy about the importance of nutrition and exercise in a healthy lifestyle. However, they remain vulnerable in other areas including violence, alcohol, and tobacco related illnesses, and we intend to focus our support and education programs in these areas. Most striking to us was their general satisfaction with their lives despite high levels of disease burden and high risk for violence, which may be a barrier to their compliance with healthier lifestyle choices.

## DISPARITIES IN HEALTH

**INTERMITTENT LACK OF HEALTH INSURANCE AND THE RISK OF A DECLINE IN OVERALL HEALTH AND PHYSICAL FUNCTIONING.** D.W. Baker[1], J.J. Sudano[1], J.M. Albert[2], E.A. Borawski[2], A. Dor[2]; [1]MetroHealth Medical Center, Cleveland, OH; [2]Case Western Reserve University, Cleveland, OH *(Tracking ID #51816)*

BACKGROUND: Many Americans are intermittently uninsured, but the health consequences of this are uncertain. This study analyzed whether adults in late middle age who lost or gained insurance coverage insurance from 1992 – 94 had an increased risk of adverse health outcomes compared to those who were insured at both time periods.
METHODS: We used public data files from the '92, '94, and '96 Health and Retirement Study (HRS), a nationally representative sample of U.S. adults 51 – 61 years old. HRS conducted in-home interviews in '92 (82% response) and follow-up phone interviews every 2 years. Insurance coverage was determined for '92 and '94. Participants were classified as uninsured if they had no form of insurance or only catastrophic coverage at the time of their interview. Self-reported health and physical difficulties were measured at all 3 interviews ('92, '94, '96). The development of a major decline in self-reported overall health (defined as a change from excellent, very good, or good to fair/poor health or from fair to poor health) or development of a new physical difficulty affecting walking or climbing stairs (mobility) were determined for '92 – 94 and '94 – 96. Independent relationships between insurance and health outcomes were determined using logistic regression adjusting for sociodemographics, overall health and physical functioning, socioeconomic status, and health behaviors at the start of the 2 time intervals. All analyses adjusted for the complex survey sampling and analytic weights.
RESULTS: 9824 people participated in '92; 377 died (3.8%), 1138 (11.6%) dropped out, 665 (6.8%) were excluded because they had public insurance at basline, and 328 (3.3%) had missing data. Of those remaining, 5843 were continuously insured, 229 lost insurance (insured '92, uninsured '94), 567 gained insurance (uninsured '92, insured '94), and 677 were continuously uninsured. The risk of a major decline in health was 7.3% and 7.7% for the continuously uninsured in '92 – 94 and '94 – 96, respectively. For those who lost coverage, the adjusted relative risk (ARR) of a major decline in health from '92 – 94 was 0.92 (95% CI 0.62 – 1.37). However, between '94 – 96, the 2 years after they lost insurance, the ARR of a major health decline was 1.78 (95% CI 1.26 – 2.48; p = 0.002) compared to the continuously insured, and the ARR of developing a new mobility difficulty was 1.24 (0.90 – 1.66; p = 0.20). Those who gained insurance had similar risks of a major health decline and development of a new mobility difficulty for both periods compared to the continuously insured, although they showed a trend towards an increased risk of a major decline in overall health from '94 – 96, the period after they gained insurance (ARR 1.38 compared to continuously insured; 95% CI 0.96 – 1.84; p = 0.09)
CONCLUSION: Individuals who lost insurance were at increased risk of a major decline in overall health after becoming uninsured. The adverse health consequences of being uninsured are not restricted to people continuously uninsured for prolonged periods. Current figures of the number of uninsured may underestimate the population at risk.

**DOES PROCEDURE AVAILABILITY OR NECESSITY EXPLAIN DIFFERENTIAL USE OF CORONARY ANGIOGRAPHY.** J.M. Barnhart[1], A.M. Bennett[1]; [1]Albert Einstein College of Medicine, Bronx, NY *(Tracking ID #50094)*

BACKGROUND: Racial and gender differences in coronary angiography utilization are well known. We sought to determine if such differences exist in a socio-economic and ethnically diverse patient population and, if present, were the findings explained by RAND criteria for the procedure.
METHODS: We prospectively identified patients being evaluated for coronary disease from 1998 to 2001 at two urban medical centers in New York City. Eligible patients were 40 years or older and without prior history of CABG. Information abstracted from medical records included patient demographics, stress test and angiography results, clinical status, and treatment recommendations. Physician reviewers used RAND criteria to rate the appropriateness and necessity of angiography. Frequencies for procedure use were examined by patient variables. Significant univariate associations were entered into multiple logistic regression equations to determine if racial or gender differences in angiography persisted after controlling for confounders.
RESULTS: Of the 320 patients identified, 243 (76%) had angiography within 90 days of evaluation for coronary disease. Angiography was rated necessary for 73%, appropriate for 5%,

uncertain for 17%, and inappropriate for 5%. After controlling for age, sex, race/ethnicity, treatment recommendation(s), and payer status, Blacks and Hispanics were significantly less likely than Whites and Asians to undergo angiography (OR = 0.24; p < 0.001). When controlling for necessity (n = 177) instead of appropriateness, no significant differences remained. There was no significant difference in receipt of necessary angiography for patients referred off-site for the procedure, compared to patients who received care where the procedure was available (93% vs. 81%; p = 0.08). Among patients receiving care where angiography was located off-site (n = 144), a recommendation for the procedure was the strongest predictor for its use (OR = 8.5; p < 0.001).
CONCLUSION: Differential use of angiography may result from the finding that in hospitals that do not provide the procedure, its use is determined by necessity, while in hospitals where angiography is readily available, there appears to be a lower threshold to perform it.

**THE ASSOCIATION OF HEALTH LITERACY WITH PATIENT SATISFACTION, PHYSICIAN SATISFACTION, AND PHYSICIAN STRESS.** P.F. Bass[1], J.F. Wilson[2], C.H. Griffith[2], D.R. Barnett[3]; [1]University of Louisville, Louisville, KY; [2]University of Kentucky, Lexington, KY; [3]VA Medical Center, Topeka, KS *(Tracking ID #52114)*

BACKGROUND: The association of health literacy with physician and patient satisfaction has been relatively unexplored. The purpose of this study was to examine the association of health literacy with both physician and patient satisfaction.
METHODS: During a 10 week period in 2000 the General Internal Medicine Clinic (IMC) at the University of Kentucky assessed physician satisfaction, patient satisfaction, and health literacy in our clinic. Health literacy was measured using the Rapid Estimate of Adult Literacy in Medicine- Revised (REALM-R), a new instrument to quickly screen for potential health literacy problems. Residents completed a Likert type satisfaction questionnaire measuring satisfaction with individual patient encounters and with the clinic in general and were asked if they believed if patients had adequate literacy skills. The patient satisfaction questionnaire was modeled after the ABIM format. General demographics were also obtained. The general linear model was used for multiple regression.
RESULTS: A conveniance sample of 416 patients from the IMC underwent health literacy screening and completed satisfaction questionnaires. All 45 residents in our program completed satisfaction questionnaires. Patients range in age from 18 to 93. On average patients completed the 12th grade and were 85% Caucasian. Residents believed 375 of 416 patients to have adequate literacy skills. Patient satisfaction in the perceived adequate group was 9.52 while the perceived inadequate was 9.08 p < .001. In the 61 patients with REALM-R and satisfaction scores, those with adequate literacy trended towards higher satisfaction (9.73 vs. 9.47 p = .09).
CONCLUSION: Patient satisfaction is a multifactorial condition. As in other studies patient wait time is major component. Interestingly, resident perception of patients of literacy was a more significantly associated with satisfaction than actual literacy ability suggesting a residents perception of literacy somehow effected the physician – patient encounter.

**RACE AND HOSPITAL CHARGE VARIATION FOR ACUTE MYOCARDIAL INFARCTION IN THE UNITED STATES, 1995 – 1997.** A.G. Bertoni[1], G.J. Chen[2], S.A. Jackson[2], D.C. Goff Jr[2]; [1]Wake Forest University, Clemmons, NC; [2]Wake Forest University, Winston-Salem, NC *(Tracking ID #51151)*

BACKGROUND: Disparities in care between blacks and whites for acute myocardial infarction (AMI) have been well documented but less is known regarding the relationship of race to the cost of AMI hospitalizations.
METHODS: We conducted a cross-sectional analysis of data from the Nationwide Inpatient Sample (which includes race and demographic, diagnostic and procedure data on all discharges from over 900 representative hospitals in 18 states) for 1995 through 1997 to compare total hospital charges in whites vs. blacks for discharges with a primary diagnosis of AMI (ICD9-CM code 410.xx). The consumer price index was used to express all charges in 1995 dollars. Length of stay and charges were log-transformed to approximate normal distributions. A Charlson-Deyo comorbidity index was constructed utilizing the additional discharge diagnoses. We determined which discharges recorded coronary artery procedures. Ordinary linear regression was utilized to estimate differences in log charges between white and black discharges while adjusting for other confounding factors.
RESULTS: We identified 286,550 discharges among whites and 22,605 discharges among blacks with AMI as the primary diagnosis billed under a cardiac diagnostic related group during 1995 – 97. The age, length of stay,and comorbidity adjusted mean charge for whites was $14,279, while among blacks charges were 11.6% lower ($1,652; 95% confidence interval [CI] $1,542 – $1,761). Charges were lower for blacks whether covered by Medicare, Medicaid or private insurance. This difference persisted after simultaneous adjustment for gender, vital status at discharge, region, insurance, zip code median income, and hospital teaching and profit status. However further adjustment for receipt of catheterization, angioplasty, stent or bypass surgery (higher rates for all procedures in whites) reduced the difference in charges between blacks and whites to 1.5% ($109; 95%CI $59 – $158). There was no difference in charges observed among blacks and whites who received no cardiac procedures.
CONCLUSION: These recent nationwide data demonstrate that most of the difference in charges between black and white discharges for AMI are related to the lower rates of cardiac procedure use seen among black discharges. These results raise the possibility that financial factors may influence the offering of procedures to black patients or their acceptance of cardiac procedures.

**ACCESS TO MULTILINGUAL PRIMARY CARE PHYSICIANS FOR CALIFORNIA'S MEDICAID PATIENTS.** A.B. Bindman[1], J. Yoon[1], K. Grumbach[1]; [1]University of California, San Francisco, San Francisco, CA *(Tracking ID #50421)*

BACKGROUND: 38% of all of California's Medicaid beneficiaries report a non-English primary language with Spanish (28%), Vietnamese (3%) and Chinese (1%) being the most common. Recent federal and state policies have directed providers who care for non-English speaking Medicaid patients to provide linguistic services. We evaluated the language capacity of primary care physicians with Medicaid patients in California.
METHODS: In 1998 we performed a mailed survey of a probability sample of primary care physicians (general internal medicine, pediatrics, family medicine, obstetric/gynecology) practicing in the 13 largest counties in California. The study counties contain 79% of California's practicing physicians and 78% of the state's Medicaid population. Physicians were asked about their demographics, practice and training characteristics, whether they had Medicaid patients in their practice, and whether they were fluent in Spanish, Vietnamese, or Chinese. We received 713 completed questionnaires from 1265 eligible primary care physicians (56%). 403 of the 713 primary care physicians were providing care to Medicaid patients.
RESULTS: Medicaid primary care physicians reported that they were fluent in Spanish (29%), Vietnamese (0.5%), or Chinese (7%). Compared to white Medicaid primary care physicians, those who were Asian, black, or Latino were more likely to be multilingual (W 27% vs A 42%, B 44%, L 100%; p ≤ 0.0001). While US medical graduates and international medical graduates (IMGs) had similar rates of being multilingual (34% vs 35%), Asian IMGs (35%), black IMGs (68%), and Latino IMGs (100%) were more likely than white IMGs (23%) to be multilingual in one of the 3 study languages (p ≤ 0.0001). For every 1000 Spanish speaking Medicaid beneficiaries there were 1.5 Spanish speaking primary care physicians who accepted Medicaid patients. This ratio was higher for Chinese speaking Medicaid patients (6.8/1000) and lower for Vietnamese speaking Medicaid patients (0.2/1000). The availability of language concordant primary care physicians varied across the study counties and was strongly associated with the number of Medicaid beneficiaries who spoke Spanish (R2 = .84) and Chinese (R2 = .68) but not with those who spoke Vietnamese (R2 = .13).
CONCLUSION: The availability of Medicaid primary care physicians who can directly communicate with non-English speaking Medicaid patients varies by the language. While the overall percentage and distribution of Spanish and Chinese speaking Medicaid primary care physicians corresponds with the local prevalence of Medicaid beneficiaries who speak these languages, large gaps remain for Medicaid patients who speak Vietnamese. Increasing the number of underrepresented minorities and selective recruitment of IMGs from particular countries could improve the concordance between Medicaid patients' needs and the language capacity of the primary care physician workforce.

**POVERTY, RACE, AND FAST FOOD: A GEOGRAPHICAL ANALYSIS.** J.P. Block[1], R.A. Scribner[2], K.B. Desalvo[1]; [1]Tulane University School of Medicine, New Orleans, LA; [2]Louisiana State University School of Medicine, New Orleans, LA *(Tracking ID #51647)*

BACKGROUND: Obesity has reached epidemic proportions in the United States, especially in black and low-income populations, and generally fails traditional medical interventions. Environmental factors may contribute to the higher prevalence of obesity in these populations. We undertook an analysis to assess the geographical association between fast food restaurants and black and low-income neighborhoods.
METHODS: Using geographic information system software, we mapped all fast food restaurants in the City of New Orleans. Buffers around census tracts were generated to simulate a half-mile "shopping area" around and including each tract, and a fast food restaurant density (number of restaurants per square mile) was calculated for that area. Using multivariate regression, we assessed the geographical association between fast food restaurants and black and low-income neighborhoods independent of other economic level predictors (presence of highways, commercial activity, and median home values). All variables in the analysis, except for dichotomous variables, were log transformed.
RESULTS: We identified 154 fast food restaurants in the City of New Orleans. The mean density for census tract "shopping areas" was 2.5 fast food restaurants per square mile [range 0 – 9]. In regression analyses, fast food restaurant density was negatively correlated with median household income (p = 0.034) and positively correlated with the percentage of black individuals (p < 0.000). Census tract "shopping area" fast food restaurant density increases by 10% for every 3% increase in percentage black or 3.4% decrease in mean household income. The relationship between median household income and fast food restaurant density was no longer significant (p = 0.581) after controlling for the presence of highways, commercial activity, and median home values (model adjusted R squared = 0.119). However, the relationship between percentage black and fast food restaurant density remained significant (p < 0.000) after including these economic predictors in the model (model adjusted R squared = 0.238).
CONCLUSION: Fast food restaurants are geographically associated with black and low-income neighborhoods, and the association with black neighborhoods remains significant after controlling for other economic predictors that would likely dictate placement of fast food restaurants. This geographical association may serve as an intermediary between the increased prevalence of obesity among black and low-income populations. Environmental factors should be considered when designing interventions aimed at achieving weight loss.

**PERCEPTION OF THE DAMAGING EFFECTS OF SMOKING, AND THE BRIEF INTERVENTION: A COMPARISON BETWEEN SWISS NATIVES AND IMMIGRANTS.** P. Bodenmann[1], N. Murith[1], B. Favrat[1], P. Vaucher[1], M. Vannotti[1], J. Cornuz[2], A. PéCoud[1], J. Zellweger[1]; [1]Medical Outpatient Clinic of Lausanne, 1005 Lausanne, Switzerland;[1], [2]Universitary hospital of Lausanne, 1005 Lausanne, Switzerland *(Tracking ID #50724)*

BACKGROUND: Smoking in developing countries is an important problem. There is no specific information regarding the immigrants perception of the damaging effects of smoking nor their attitude towards the physician's advice when they arrive to an industrialized country. Objectives: 1. Evaluate the perception of the damaging effects of smoking among immigrants of different ethnic origins. 2. Determine whether physicians give as much advice on smoking cessation to immigrants patients as to Swiss patients.
METHODS: Over a four- month period , all smoking patients (p.) aged over 18 years who came to consult without appointment at the Medical Outpatient Clinic of Lausanne were included prospectively. Before the medical consultation, each patient filled in a self-

administered questionnaire covering socio-demographic and cultural information, smoking habits, perception of the risks involved in smoking, and level of motivation to quit. The questions were asked in the main foreign languages spoken by our patients. After the medical consultation, a second self-administered questionnaire was filled in to know if any advice on smoking cessation had been given during the consultation. At the same time, 22 physicians of the clinic - not informed about the aim of this study — were questioned on the principal medical problems brought up during the consultation and the recommended solutions.
RESULTS: 228 questionnaires were collected and analyzed. In 151 cases, all the parts of the questionnaires were completed, in 77 some information were missing. 120 p. were immigrants (42 women), 105 were Swiss (59 women), and 3 of unknown origin. Of the immigrant patients, 34 were African and 26 were of Eastern European origin. 39 out of 117 immigrants (33%, CI 95% : 25%–42%) did not know at least one damaging effect of smoking on health, while in the Swiss population this proportion was only 10 out of 104 (10%, CI 95% : 5%–17%). The probability of not knowing any damaging effect of smoking was higher among p. from Eastern Europe (OR = 5.60, CI 95% 2.81–11.14) and Africa (OR = 3.69, CI 95% 1.73–7.86) than among the Swiss. The physicians gave at least as much advice on smoking cessation to immigrants (38/118,32%,CI 95%:24–41%) as to Swiss (29/100, 29%,CI 95%: 21%–38%).
CONCLUSION: Physicians confronted with immigrants smokers should consider the fact that these patients have less knowledge regarding the risks of smoking. In a teaching center for primary care we did not find any difference with regards to advice on smoking cessation given to Swiss natives and immigrants. Brief intervention was performed only in a minority of patients, maybe they came to consult for the first time without appointment.

**PREDICTORS OF PATIENT TRUST IN A LOW-SOCIOECONOMIC POPULATION.** D.E. Bonds[1], K. Long Foley[1], M.A. Hall[1], P. Extrom[1], E. Dugan[2]; [1]Wake Forest University, Winston-Salem, NC; [2]New England Epidemiology Research Institute, Boston, MA *(Tracking ID #51194)*

BACKGROUND: Trust between physician and patient is a key component of the therapeutic relationship. Research to date has focused on physician behaviors or characteristics that predict patient trust. Little research has been done examining patient characteristics that predict trust levels. Our aim was to explore patient characteristics that predict patient trust in a low socioeconomic population.
METHODS: We administered a cross-sectional survey to randomly selected patients of an academic medical center primary care clinic. The clinic serves primarily uninsured (50%) or Medicaid insured (20%). The survey consisted of 7 sections (physician trust scale, patient demographics, physical and mental health scales, social support scale, patient–physician interaction characteristics, institutional trust scale, physician characteristics). The Wake Forest Physician Trust scale was used to measure patient trust. Previously validated instruments were used on other secions when available. The survey was administered in person or by telephone after the visit. Hierarchical regression analysis was performed to evaluate the impact of patient demographics (Step 1), patient health and social support (Step 2), physician characteristics (Step 3), patient–physician interaction characteristics (Step 4) and institutional trust (Step 5) on patient trust levels.
RESULTS: 217 patients were interviewed in person (n = 41) or over the phone (n = 176) after having seen their primary care physician at a routine visit. Average age was 54 (19–89), 68% female, 50% non-white, 45% had less than a high school education, and 80% stated they never, rarely or sometimes had enough money to buy the things they needed. Patient's had on average 2.6 medical illnesses. The average level of patient trust was 42.7/50 (SD 6.20, range 11–50). Race, gender, socioeconomic status, physical health, mental health and level of social support did not predict trust levels. In hierarchical analysis only patient age (older patients having less trust, beta = −0.06, p < 0.05), patient's perception of their physician level of knowledge (less knowledge leading to less trust, beta = −4.11, p < 0.001 ), and the patient's trust in the medical center institution (higher institutional trust resulting in higher patient trust, beta = 0.50, p < 0.001) predicted trust levels.
CONCLUSION: Trust levels in this low socioeconomic population were high and comparable to those obtained in national samples with the same instrument. We found few patient characteristics that predicted higher trust levels. Older patients and patients who believed their physicians did not know enough had lower levels of trust while those patients with high trust in the medical center also had high trust in their individual physician. Further reseach exploring predictors of patient trust is needed.

**RACIAL DIFFERENCES IN TRUST IN DIFFERENT COMPONENTS OF OUR HEALTH CARE SYSTEM.** L.E. Boulware[1], L.A. Cooper[1], L.E. Ratner[2], T.A. Laveist[1], N.R. Powe[1]; [1]Johns Hopkins University, Baltimore, MD; [2]Thomas Jefferson University, Philadelphia, PA *(Tracking ID #51500)*

BACKGROUND: Little is known about racial differences in trust of the different components of our health care system (physicians, health plans, and hospitals). Knowledge of such differences may lend insight into racial disparities in access to and satisfaction with care.
METHODS: We conducted a cross-sectional telephone survey of randomly selected households in Baltimore, Maryland. We asked persons age 18–75 to rate their level of trust in physicians, health plans, and hospitals. Trust in physicians (TP) was considered present if respondents agreed with the statement, "I trust my physician to put my medical needs above all other considerations when treating my medical conditions"; trust in hospitals (TH) was considered present if respondents agreed with the statement, " I trust hospitals"; and trust in health plans (THP) was considered present if respondents agreed with the statement, "I trust my health plan to put my medical needs above all other considerations when treating my medical conditions." We assessed the independent relation of race with TP, TH, and THP while adjusting for age, gender, insurance type, employment status, exposure to medical environments, and whether respondents belonged to a health maintenance organization.
RESULTS: Of 175 homes contacted and agreeing to randomization, 125 (71%) participants were eligible and agreed to participate. Of all non-Hispanic Black and White respondents (n = 118, 94% of total survey population), 49 (41%) were Black, and 69 (58%) were White. Blacks were more likely than Whites to have a high school education or less (p < 0.01), less than $40,000 in annual household income (p < 0.01), and to be disabled or unemployed (p < 0.01). While more than half of all respondents had TP (72%), Blacks were statistically significantly less likely than Whites to have TP after adjustment (43% vs. 80%, p = 0.01). More than half of all respondents had TH (70%), but in contrast, Blacks were equally as likely as Whites to have TH after adjustment (61% vs. 74%, p = 0.3). Fewer than half of all respondents had THP (29%), and Blacks were statistically significantly more likely than Whites to have THP after adjustment (51% vs. 22%, p = 0.04).
CONCLUSION: Patterns of trust in the different components of our health care system differ by race. While Blacks are less trusting than Whites of their physicians, they are equally as trusting of hospitals, and more trusting of their health plans. Trust in physicians and hospitals may be related to patient–physician communication, patient expectations, and prior experience, while trust in health plans may be related to patient expectations and perceived race-anonymity within health plans. Improved understanding of these factors is needed if efforts to enhance patient access to care and satisfaction with care are to be effective.

**COMMUNITY TRUST: A MULTI-LEVEL ANALYSIS OF COUNTY SOCIAL CAPITAL, INCOME INEQUALITY, AND INDIVIDUAL HEALTH.** B.K. Britt[1], A.V. Diez Roux[1]; [1]Columbia University, New York, NY *(Tracking ID #52103)*

BACKGROUND: Substantial interest and debate has arisen in the field of social epidemiology over the relationship between social capital, community cohesion, income inequality, and the effects of these group-level determinants of individual health. This study examines the relationship between county-level measures of social capital and income inequality, and assesses the effects of these group-level socioeconomic determinants on individual self-reported health, while controlling for individual socioeconomic status (SES) and health behaviors.
METHODS: We linked data from three sources: the 2000 Social Capital Benchmark Survey, the 2000 Behavioral Risk Factor Surveillance System (BRFSS), and income data from the U.S. Census Bureau. Responses to the Social Capital Benchmark Survey from 10,274 randomly sampled adults in 20 counties across the United States were averaged to obtain mean values of the county-level social capital variables: trust, social integration, volunteerism, and religiosity. Health and socioeconomic data from 7405 individuals in the BRFSS who resided in these 20 counties was then linked with the respective county-level social capital variables, and a county-level indicator of income inequality derived from U.S. Census Bureau data. Logistic regression was used to assess the effects of county-level trust, social integration, volunteerism, religiosity, and income inequality on individual self-reported health, controlling for individual SES and health risk behaviors.
RESULTS: Individuals living in counties with low levels of social trust were 1.595 times more likely (CI 95% 1.190, 2.138) to report poor or fair health compared to individuals living in counties with high levels of social trust. When county-level income inequality and county median household income were added to the model, the effect of county-level trust was only mildly attenuated (OR 1.508, CI 95% 1.121, 2.027). County-level income inequality was found to have an independent effect on health: individuals living in counties with high levels of income inequality were 1.189 times more likely (CI 95% 1.014, 1.393) to report poor or fair health compared to individuals from counties with lower income inequality. Individuals living in counties with low levels of social integration were also more likely to report fair or poor health. These estimates of county-level effects on health control for individual age, race/ethnicity, gender, education, income, smoking, exercise, and diet.
CONCLUSION: Lower levels of community trust, social integration, and increasing income inequality are significant determinants of health, with effect sizes that match or exceed those of many individual-level health risk behaviors and individual SES indicators. The emergence of these area-level determinants of health suggests a need for further research into their precise pathways and mechanisms, and perhaps a closer look at the meaning and practice of "community health."

**QUALITY OF CARE AND SATISFACTION WITH CARE FOR LATINOS WITH DIABETES IN MANAGED CARE: THE TRIAD STUDY.** A.F. Brown[1], R.C. Gerzoff[2], A.J. Karter[3], G.L. Beckles[2]; [1]University of California, Los Angeles, Los Angeles, CA; [2]Centers for Disease Control, Atlanta, GA; [3]Kaiser Permanente Division of Research, Oakland, CA *(Tracking ID #51994)*

BACKGROUND: We evaluated whether ethnicity and language are barriers to health care and satisfaction with care for Latinos with diabetes in managed care.
METHODS: Translating Research into Action for Diabetes (TRIAD) is a six-center study of 11,927 persons with diabetes from ten health plans who responded in English or Spanish to a mailed or telephone survey (overall response rate 68%). Participants reported their sociodemographic and clinical characteristics, preventive service use in the prior year, and satisfaction with health care using a global measure of satisfaction as well as items from the Consumer Assessment of Health Plans Survey (CAHPS® 2.0). The four centers that enrolled whites, English-speaking Latinos, and Spanish-speaking Latinos were eligible for these analyses. We compared diabetes preventive service use and satisfaction with care for English and Spanish-speaking Latinos versus whites using hierarchical regression models adjusted for age, gender, education, health status, duration of diabetes, and clustering within health plan.
RESULTS: Interviews were completed by 2710 whites, 1316 Latinos in English, and 281 Latinos in Spanish. Spanish-speaking Latinos were older, more likely to be female, less likely to have graduated from high school, and less likely to be on insulin than either whites or English-speaking Latinos. In adjusted analyses, Spanish-speaking Latinos had lower rates of self-monitoring of blood sugar (predicted probability 84% versus 77%, p = 0.01) and, among smokers, were less frequently advised to stop smoking (72% versus 91%, p = 0.02) than whites. However, lower rates of dilated eye exams were reported by whites (75%) than either English-speaking (80%, p = 0.002) or Spanish-speaking (82%, p = 0.02) Latinos. There were no differences in frequency of foot exams, being advised to take aspirin for cardiovascular benefit, satisfaction with diabetes care, the ease of getting needed care, or ratings of provider communication.
CONCLUSION: Although we observed similar process of and satisfaction with care among whites, English-speaking Latinos, and Spanish-speaking Latinos for most measures, language

barriers appeared to influence rates of self-monitoring of blood sugar and advice to stop smoking, while Latino ethnicity was associated with higher rates of dilated eye examinations. Further study is needed to determine the structural and organizational characteristics of the managed care plans that contribute to higher rates of eye care for Latinos and to design interventions to reduce disparities in self-care practices associated with language barriers in managed care settings.

**MEDICATION UNDERUSE AND GLYCEMIC CONTROL IN UNINSURED AFRICAN-AMERICANS WITH DIABETES.** A.F. Brown[1], D.S. Porterfield[2], E.W. Gregg[3], G.L. Beckles[3], M.M. Engelgau[3]; [1]University of California, Los Angeles, Los Angeles, CA; [2]North Carolina Division of Public Health, Raleigh, NC; [3]Centers for Disease Control and Prevention, Atlanta, GA *(Tracking ID #52296)*

BACKGROUND: We examined the association between insurance coverage, use of essential diabetes medications, and glycemic control among African Americans with diabetes.
METHODS: Project DIRECT is a community-based diabetes prevention and control project with two sites in North Carolina. We analyzed data from the 1997 baseline assessment, a household survey of a population-based probability sample of 2310 adults from predominantly African-American neighborhoods (response rate 87%). Underuse of essential diabetes medications was a summary measure based on patient report of lower rates of use of diabetes medications than prescribed. The relationship between lack of health insurance, diabetes medication underuse, and glycemic control was evaluated using bivariate tests of association and multivariate regression models adjusted for age, gender, income, education, insulin use, and having a regular source of care.
RESULTS: Diabetes was reported by 625 participants, 94 (15%) without health insurance. Mean age was 58±13 years, 64% were female, 38% had not graduated from high school, and 45% were on insulin. Compared to insured persons with diabetes, the uninsured were younger ($p < .0001$), had less education ($p = .005$), and had lower income ($p = .002$). There were no differences by insurance in gender, insulin use, or overall rating of health. Uninsured persons were more likely to report not being able to get needed diabetes medications (33% vs. 15%; $p < .0001$); less likely to report using medications all the time as prescribed (63% vs. 78%; $p = .01$); and more likely to cut back on the amount of medication without medical supervision (14% vs. 8%; $p = .05$), to not refill medications (30% vs. 13%; $p = .0001$), or to stop taking medications because they thought they were not needed (18% vs. 9%; $p = .008$). Patients with insurance had a mean hemoglobin A1c ($HbA_{1c}$) of 8.4% compared to 9.1% for those without insurance ($p = .002$). Persons who reported using medications as prescribed had $HbA_{1c}$ of 8.6, compared to 9.2 in those reporting medication underuse ($p = .004$). In the adjusted analysis, both lack of insurance (Beta = 0.093; $p = .008$) and medication underuse (Beta = 0.052; $p = .03$) were independently associated with worse glycemic control.
CONCLUSION: African Americans with diabetes who lack insurance report difficulty accessing care and high rates of underuse of medications. In this cohort of patients, lack of insurance and medication underuse are independently associated with poor glycemic control. Efforts to increase access to medication and to education regarding medication use may improve disparities in health outcomes between the insured and uninsured.

**RACIAL DIFFERENCES IN CANCER SURVIVAL.** H. Burke[1], C. Faselis[1]; [1]George Washington University, Washington, DC *(Tracking ID #52134)*

BACKGROUND: Compared to white cancer patients, African-American cancer patients have a worse cancer-specific survival for several solid tumor sites. It is not known whether this racial difference is systematic across the sixteen of the most common solid tumor sites.
METHODS: This is a representative cohort study of 224 946 cancer patients with five year follow-up collected by the National Cancer Institute's Surveillance, Epidemiology, and End Results (SEER) program. The outcome is the odds ratio of disease-specific survival for African-Americans compared to whites.
RESULTS: At diagnosis, African-Americans' chance of survival was significantly lower than whites for fourteen of the sixteen cancer sites ($p < 0.0001$). After adjusting for age, sex, tumor size, depth of invasion, local/regional/distant extent of disease, lymph node involvement, histologic grade, histologic type, and primary therapy African-Americans' chance of survival was significantly lower than whites for all sixteen solid tumor sites ($p = 0.02$). The unadjusted and adjusted odds ratios were not significantly correlated, R2 = 0.17, ns. Racial differences in odds ratios for cancer-specific survival were related to whether the tumor sites were slow growing or rapidly growing, with larger differences in the slow growing tumor sites. If the lethality of the tumor site was known then the degree of racial difference could be accurately predicted (ROC = 0.958).
CONCLUSION: There is a systematic racial difference in cancer-specific survival across the most common solid tumor sites, both before and after adjustment for severity of disease at detection, with African-Americans having a worse outcome. Finally, the racial difference in survival is systematic in terms of tumor lethality, the difference is larger for slowly lethal tumor sites and smaller for rapidly lethal tumor sites.

**PERCEPTIONS TOWARD HIV AMONG HIV-NEGATIVE GAY MEN.** P. Bushkuhl[1]; [1]New York, NY *(Tracking ID #51739)*

BACKGROUND: There has been a recent rise in the number of new HIV infections among gay men. This, coupled with increasing rates of syphilis and rectal gonorrhea, betrays an increase in high-risk sexual behaviors among this group. In elucidating the cause of this change in behavior, it is crucial to assess current perceptions toward HIV. Is there unwarranted optimism?
METHODS: This is a cross sectional survey of patient perceptions regarding incidence, prognosis, and treatment of HIV. A questionnaire was completed by 77 HIV-negative, gay men drawn from a private practice located in Manhattan. Their responses were compared to the current reality of HIV in the United States. Information regarding their sexual behavior was also collected.
RESULTS: Forty-eight percent of study subjects responded pessimistically and thirty-five percent optimistically. Thirty-five percent of the participants had very high-risk sexual practices. Of the questions there is one in particular that offers a succinct look at perception. It asked the study subjects to classify HIV as either a chronic illness or a fatal disease. Compared to the remainder of the cohort, a significantly higher percentage of the group with high-risk sexual practices (70% vs. 40%, $p = .02$) classified HIV as a fatal disease.
CONCLUSION: Despite a generally pessimistic perception of HIV the study population had a significant proportion of men with very high-risk sexual behaviors. Based on their responses, one could argue that in this high-risk group a sense of fatalism, rather than optimism, is driving behavior.

**THE RELATIONSHIP OF RACE TO OUTCOMES AND THE USE OF HEALTH CARE SERVICES IN ACUTE LOW BACK PAIN.** T.S. Carey[1], J. Garrett[2]; [1]UNC-CH, Cecil G. Sheps Center for Health Services Research, Chapel Hill, NC; [2]UNC-CH, Department of Medicine, Chapel Hill, NC *(Tracking ID #51708)*

BACKGROUND: Little research to date has examined the relationship of patient race to recovery from an episode of acute low back pain (LBP). We examined data from a cohort study of acute low back pain to determine whether race had an independent effect on the rate of recovery from low back pain, and whether there was any racial disparity in the treatments provided to patients with LBP.
METHODS: We conducted a cohort study of 1633 patients with LBP who presented to randomly selected health care providers in North Carolina in the mid-1990's, in four strata: Primary care MD's; Doctors of Chiropractic; Orthopedic Surgeons; and primary care providers at a group-model HMO. Entry criteria were broad: back pain of 10 weeks or less duration, no previous spine surgery, no history of non-skin malignancy, and no previous care for that episode of LBP. Patients were enrolled in the provider's office and contracted by telephone at baseline and 2, 4, 8, 12 and 24 weeks, as well as 22 months.
RESULTS: Blacks (N=238) at baseline had higher pain scores (5.92 vs. 5.25, $p<0.01$ on a 10 point scale) and worse functional disability (12.1 vs. 11, $p = 0.04$) as assessed by the 23 point Roland-Morris scale, yet were considered by their health provider as having less severe pain and less likely to have disc disease compared with white patients (all comparisons $p < 0.05$). Blacks had worse functional disability, as assessed by the Roland-Morris scale, at most follow-up interviews. Blacks were less likely to receive radiographs (49 vs. 40%) or advanced imaging studies (10 vs. 6%) even after controlling for income, education, baseline severity of LBP and insurance status ($p < 0.05$). Doctors of Chiropractic had different practice approaches from MD's and there was an interaction with patient race.
CONCLUSION: The relationship of patient race with the outcomes from and care for LBP is complex. Blacks have slightly worse functional status compared to whites on presentation and at follow-up. Blacks receive less intense diagnostic and treatment approaches from MD's, even though their severity of impairment is at least as great.

**IMPACT OF REPEALING ANTI-IMMIGRANT PROVISIONS OF THE PERSONAL RESPONSIBILITY AND WORK OPPORTUNITY AND RECONCILIATION ACT AS PART OF GOVERNMENT INSURANCE EXPANSION PROGRAMS.** O. Carrasquillo[1], D.H. Ferry[1], J. Edwards[2], S.A. Glied[1]; [1]Columbia University, New York, NY; [2]Commonwealth Fund, New York, NY *(Tracking ID #51962)*

BACKGROUND: Several states have obtained waivers to expand their children health insurance programs (SCHIP) to parents of eligible children and bi-partisan federal legislation supporting such expansions has been proposed. However, the Personal Responsibility and Work Opportunity and Reconciliation Act (PRWORA) prevents states from using federal funds to provide Medicaid or SCHIP coverage for immigrants residing in the United States for less than five years.
METHODS: To estimate the number of children currently barred from Medicaid/SCHIP and the number of parents who would be excluded from SCHIP expansions as a result of anti-immigrant PRWORA provisions, we analyzed data from the Census Bureau's March Current Population Survey. In order to increase the precision of our estimates, we combined 1999 and 2000 data. State-specific qualification criteria regarding Medicaid, SCHIP, and coverage of immigrants were obtained from a variety of sources. We adjust for undocumented status and provide sensitivity analyses ± 50% of our estimate of the undocumented population. Standard errors were calculated according to methods developed by the Census Bureau.
RESULTS: We found anti-immigrant provisions of PWRORA reduce access to health insurance in three ways. First, 110,000 (se 20,000) children legally admitted to the US in the last five years are income-eligible for Medicaid or SCHIP, but live in a state where immigrant restrictions prevented them from gaining access to public coverage. Second, in states using their own funds to provide Medicaid and/or SCHIP coverage to recently arrived immigrant children, 47% of eligible children are not enrolled, probably due to fear or confusion. Third, 250,000 (se 40,000) parents of CHIP and Medicaid children who may soon be eligible for coverage would be excluded because they have been in the US less than five years. In our sensitivity analysis, this estimate ranged from 200,000 to 310,000.
CONCLUSION: There are relatively few immigrants who are currently barred from Medicaid/SCHIP coverage by PWRORA or who will be barred from coverage if SCHIP were expanded to parents of eligible children. As the cost of covering this small population would be low, our findings support initiatives to extend Medicaid/SCHIP eligibility to recently arrived immigrants.

**VARIATION BY RACE/ETHNICITY AND GENDER IN TOTAL JOINT REPLACEMENT DECISIONS.** H.J. Chang[1], P.S. Mehta[1], S. Boghani[1], J. Jacobs[2], S.C. Scrimshaw[1]; [1]University of Illinois at Chicago, Chicago, IL; [2]Rush-Presbyterian-St. Luke''s Medical Center, Chicago, IL *(Tracking ID #51918)*

BACKGROUND: Knee osteoarthritis (OA) affects 6 million American adults. While total joint replacement surgery (TJR) is considered an extremely valuable intervention for knee OA,

utilization of TJR in the United States varies widely by both gender and race/ethnicity. For instance, women have significantly worse preoperative functional status at time of TJR for OA, suggesting they choose TJR at a more advanced disease stage, possibly at the expense of quality of life. The reason for this disparity is unclear. We conducted this study to examine which factors are most important to patients considering TJR and whether these factors differ by race/ethnicity or gender.
METHODS: Six focus groups consisting of patients actively considering TJR were conducted. Participants were asked 2 questions: 1) the most important personal factors for TJR, and 2) the most important personal factors against TJR. Conversations were recorded for data analysis purposes, and transcriptions were analyzed for thematic content by 2 independent evaluators. ATLAS.ti was used to tabulate theme frequency by gender and race/ethnicity.
RESULTS: Preliminary data show all groups agreed on some mediating factors (e.g., pain as a factor for TJR; uncertainty of surgical results as a factor against TJR). Other (modifying) factors appear weighted differently by different groups. For instance, technology was more important to African-Americans and social support was more important to women. As OA severity increased, modifying factors became less important.
CONCLUSION: In summary, factors against TJR decrease in number as factors for TJR increase in dominance with disease progression. Our results indicate different genders and racial/ethnic subgroups consider the same factors when making decisions regarding TJR, but weight them differently. These differences may contribute to gender and racial/ethnic disparity seen in TJR utilization.

**PATIENTS' CONCERNS REGARDING TOTAL KNEE REPLACEMENT: EFFECTS OF GENDER AND RACE/ETHNICITY.** H. Chang[1], P.S. Mehta[1], A. Rosenberg[2], S.C. Scrimshaw[1]; [1]University of Illinois at Chicago, Chicago, IL; [2]Rush-Presbyterian-St. Luke's Medical Center, Chicago, IL *(Tracking ID #51919)*

BACKGROUND: It is well known that women and racial/ethnic minorities under-utilize high-cost procedures such as total knee replacement (TKR) surgery. For instance, women have significantly worse functional status at time of TKR for OA compared to men; this suggests they choose TKR at a more advanced disease stage, possibly at the expense of quality of life. The reasons for these disparities are unclear. This study examines differences in patients' concerns regarding TKR by gender and race/ethnicity.
METHODS: Six focus groups consisting of patients actively considering TKR were conducted. Discussion topics included patients' questions and concerns regarding TKR. Conversations were recorded for data analysis purposes, and transcriptions were analyzed for thematic content by 2 independent evaluators. ATLAS.ti was used to tabulate patients' concerns by gender and race/ethnicity.
RESULTS: Preliminary data show all groups shared similar concerns (e.g., "How long will I be in the hospital"; "How quickly can I walk [after TKR]"). However, some issues were more prevalent among certain gender and racial/ethnic groups. For instance, concerns regarding anesthesia during the procedure were more important to African-Americans, and concerns regarding rate of recovery were more important to women.
CONCLUSION: In summary, our results indicate that different gender and racial/ethnic subgroups focus on different concerns when faced with the option of TKR. These differences may contribute to gender and racial/ethnic disparity seen in TKR utilization.

**AVAILABILITY AND QUALITY OF MEDICAID APPLICATION RESOURCES ON STATE MEDICAID INTERNET WEB SITES.** B.I. Chaudhry[1], W.E. Cunningham[1]; [1]University of California System, Los Angeles, CA *(Tracking ID #51671)*

BACKGROUND: Many persons eligible for Medicaid are not enrolled. Internet resources for applying to Medicaid could help vulnerable groups gain access to needed care, but few data exist on the availability and quality of state web site resources.
METHODS: Internet searches were completed from February to August 2001 for all fifty states and the District of Columbia using computers with direct network connections to a central server. Searches were first done with a search engine using a standard search phrase: the state name followed by 'Medicaid.' To maximize identification of the primary Medicaid site for each state, searches were also done using three other methods — using links through each state's main home page, through links on the California Medicaid Home Page, and through a government web page (NASCIO.org). A trained physician systematically searched each site for at least 45 minutes. Sites were analyzed for whether they provided information on: application resources (description of how to apply, Medicaid application form on line, form available in a second language, contact phone numbers available), the definition of Medicaid (government sponsored health insurance for certain populations), general and specific benefits, eligibility criteria categories (age, income, assets, disability, pregnancy, children, Medicare recipients, long term care, and citizenship) copayment policy, and lists of participating providers. Technical features analyzed were presence of a web site help function, search function, frequently asked question (FAQ) section, and web site map function. For web sites with search functions subsearches were done using the phrase 'Medicaid application' to determine if internal site links to client application information or forms were identified.
RESULTS: All 50 states and the District of Columbia had Medicaid web pages. Only 24% of sites made client application forms available on line. In contrast, 53% made forms available for providers. Of sites with client applications available 50% had the form in a second language. Contact phone numbers were given on 94%. Of all sites 80% defined Medicaid as health insurance, 94% described general benefits, and 90% described specific benefits. Sites providing information on eligibility criteria were variably described, ranging from 40% for citizenship to 86% for children. Only 14% had a list of participating providers and only 29% addressed copayments. With regard to technical features 88% of the sites were found within the first three search engine results pages, 14% had help functions, 25% had FAQ sections, 44% had site maps and 65% had search functions of which 0% of searches for 'Medicaid application' yielded appropriate links to client application information or forms in the first 30 result links.
CONCLUSION: Few state Medicaid web sites provide adequate application materials needed to simplify the application process for prospective patients. Improving access to Medicaid application resources on the internet may be one way to increase insurance coverage for vulnerable populations.

**CANCER SCREENING DISPARITIES IN ASIAN AMERICAN AND PACIFIC ISLANDER SUBPOPULATIONS.** J. Chen[1], M. Kagawa-Singer[1], N. Pourat[1], A.L. Diamant[1]; [1]University of California, Los Angeles, Los Angeles, CA *(Tracking ID #51494)*

BACKGROUND: Breast, cervical, and colorectal cancers cause significant morbidity and mortality among Asian Americans and Pacific Islanders (AAPIs), yet studies have shown that AAPIs have the lowest cancer screening rates in the United States. Few studies have identified the factors associated with this disparity. Furthermore, the traditional approach of studying the diverse AAPI nationalities as one group may hide important ethnic differences in cancer screening. To address these problems, we compared cancer screening rates among particular AAPI groups and non-AAPIs living in an ethnically diverse region.
METHODS: Our study population was drawn from the 1999 Los Angeles County Health Survey, a population-based telephone survey that relied on random digit dialing techniques. Over 8000 people completed the survey (response rate 54%) and 711 self-identified as AAPIs. Among the AAPIs, there were 238 Chinese, 101 Korean, 105 Japanese, 136 Filipino, and 35 Asian Indians. Because of small numbers and regional proximity, we grouped together Laotians, Cambodians, and Vietnamese (52) and Samoans, Guamanians, and Hawaiians (27). We assessed receipt of age and gender-appropriate cancer screening procedures for cervical, breast and colorectal cancer among discrete groups of AAPIs and we used multivariate logistic regression to control for age, education, insurance, income, usual source of care, nativity, and health status.
RESULTS: 65% of AAPIs had a Pap smear within 2 years and compared to non-Hispanic whites, Laotians, Cambodians, and Vietnamese were less likely to have had a pap smear [OR 0.2, 95%CI (0.1, 0.3)] or a clinical breast exam [OR 0.3, 95%CI (0.1, 0.6)]. Ethnicity was not a significant factor in having a mammogram within the last two years. Chinese were less likely to have fecal occult blood testing within a year [OR 0.2, 95%CI (0.1, 0.5)] and Koreans were less likely to have ever had a sigmoidoscopy [OR 0.1, 95%CI (0.02, 0.4)].
CONCLUSION: Our results revealed that particular AAPI subpopulations were less likely to have undergone cancer screening compared to non-Hispanic whites independent of major demographic, socioeconomic, and health status factors. Our findings emphasize the importance of disaggregating the heterogeneous AAPI population to identify the higher risk groups and to address their health-related disparities.

**DIFFERENCES IN COLORECTAL CANCER SURVIVAL BETWEEN FOREIGN-BORN AND U.S.-BORN ASIAN AMERICANS AND PACIFIC ISLANDERS.** J.H. Choe[1], T.D. Koepsell[2], P.J. Heagerty[2]; [1]University of Washington Clinical Scholars Program, Seattle, WA; [2]University of Washington, Seattle, WA *(Tracking ID #52358)*

BACKGROUND: Asian Americans and Pacific Islanders (AAPI) have more favorable survival following diagnosis of colorectal cancer than other racial and ethnic populations. However, previous studies have not always taken into account the group 's tremendous diversity, which may mask important differences in survival among some segments of this population. In particular, foreign-born AAPI immigrants face many challenges that may place them at risk for worse health outcomes. The purpose of our study was to compare 5-year survival between foreign-born and U.S.-born AAPIs after diagnosis with colorectal cancer.
METHODS: We identified 10,985 AAPI patients with colorectal cancer diagnosed between 1973 and 1993 from the Surveillance, Epidemiology, and End-Results (SEER) database, a dynamic population-based cancer registry that includes detailed demographic and clinical information. Patients were categorized as foreign-born or U.S.-born, with missing birthplace information assigned utilizing multiple imputation methods. The primary outcome measure was death within 5 years of diagnosis of colorectal cancer. Multivariate logistic regression was used to estimate the increased risk of death associated with foreign birth.
RESULTS: Among AAPI patients, foreign birth was associated with significantly higher risk for death within 5 years of diagnosis of colorectal cancer (crude odds ratio 1.44; 95% confidence interval 1.32 – 1.58). Foreign birth was still associated with higher risk for death even after adjustment for age, year of diagnosis, gender, marital status, and ethnic group (OR 1.18; 95% CI 1.04 – 1.33). Stage of disease at presentation is more advanced among foreign-born compared to U.S.-born AAPIs ($p<0.0001$). Only after additional adjustment for stage at presentation does this increased risk for foreign birth become nonsignificant (OR 1.12; 95% CI 0.97 – 1.29).
CONCLUSION: Foreign-born Asian American and Pacific Islander immigrants remain a group at increased risk for poor outcomes following diagnosis of colorectal cancer. Much of this difference in outcome appears to be related to later stage at diagnosis among the foreign-born. Identifying strategies to increase screening rates and to find colorectal cancer at earlier stages among this vulnerable population may help reduce the disparity in survival outcomes.

**THE PREVALENCE OF PERIPHERAL ARTERIAL DISEASE IN AN ETHNICALLY DIVERSE POPULATION.** T.C. Collins[1], N.J. Petersen[1], M. Suarez-Almazor[1], C.M. Ashton[1]; [1]Baylor College of Medicine, Houston, TX *(Tracking ID #50894)*

BACKGROUND: Peripheral arterial disease (PAD) is atherosclerosis of the abdominal aorta and arteries of the lower extremities. The comparative prevalence of disease among ethnically diverse cohorts of patients seen within a primary care setting has not been established. The purpose of this study was to determine the burden of peripheral arterial disease in Non-Hispanic White, African American, and Hispanic, both English and Spanish speaking, patients.
METHODS: We randomly screened patients over 50 years of age for PAD who had scheduled appointments within one of three primary care clinics located in the Houston VA Medical Center and the Harris County Hospital District. PAD was diagnosed as a level less than 0.9 on the ankle-brachial index (ABI), the ratio of ankle and arm bedside blood pressure measurements. Patients completed four questionnaires, one of which was used to ascertain leg symptoms related to compromised blood flow, the San Diego Claudication Questionnaire

(SDCQ). Additional questionnaires were used to determine the patient's medical history, walking impairment, and health related quality of life.
RESULTS: We enrolled 403 patients (136 Non-Hispanic Whites, 136 African Americans, and 131 Hispanics, 81 of whom were Spanish speaking). The number of female participants was 55 Non-Hispanic Whites, 82 African Americans, 20 English speaking Hispanics, and 47 Spanish speaking Hispanics. The mean age the total cohort was 63.8 ± .36. There were no statistically significant differences in the mean ages by race for the cohort or for patients with PAD. The prevalence of PAD was 13.2‰ among Non-Hispanic Whites, 22.8‰ among African Americans, and 13.7‰ among Hispanics (p ≡.06). Because of the similar prevalence of disease within each group, Non-Hispanic Whites and Hispanics were combined resulting in a PAD prevalence of 13.5‰. This prevalence was statistically significantly different from the above prevalence of PAD in African Amercans (p ≡ .02). Among all patients who screened positive for PAD based on the AAI, only 5 (7.5‰) had symptoms of intermittent claudication. Walking impairment subscale scores were lower for patients with PAD than for those without PAD. Scores on the SF-36 physical function and role limitations-physical subscales were lower for patients with PAD than for those without PAD.
CONCLUSION: PAD is a prevalent illness within a primary care setting. The prevalence of the disease varies by race and is higher in African Americans than Non-Hispanic whites and Hispanics. Relative to the prevalence of PAD, the prevalence of intermittent claudication is low. As the ABI is not part of the routine clinic visit, many patients with PAD are not diagnosed until the development of symptoms of intermittent claudication and patients with PAD likely remain undiagnosed. As patients with PAD, both symptomatic and asymptomatic, are at increased risk for cardiovascular outcomes, limb loss, and compromised walking, efforts to improve detection and subsequent outcomes in PAD should target those populations most at risk.

**RISK FACTORS FOR PERIPHERAL ARTERIAL DISEASE IN A COMBINED POPULATION OF NON-HISPANIC WHITES, AFRICAN AMERICANS, AND HISPANICS.** T.C. Collins[1], M.E. Suarez-Almazor[1], N.J. Petersen[1], C.M. Ashton[1]; [1]Baylor College of Medicine, Houston, TX *(Tracking ID #52008)*

BACKGROUND: Peripheral arterial disease (PAD) is atherosclerosis of the abdominal aorta and arteries of the lower extremities. Risk factors for this disease among an ethnically diverse cohort of patients within a primary care setting has not been established. The purpose of this study was to determine the risk factors for PAD in Non-Hispanic White, African American, and Hispanic, both English and Spanish speaking, patients.
METHODS: We screened patients over 50 years of age for PAD within three primary care clinics located in the Houston VA Medical Center and the Harris County Hospital District. PAD was diagnosed as a level less than 0.9 on the ankle-brachial index (ABI), the ratio of ankle and arm bedside blood pressure measurements. Patients also completed a questionnaire that provided information on medical history. Variables that were univariately associated with PAD (p < .05) were selected for entry into a multivariate logistic regression model. A stepwise selection process was used to determine to final logistic regression model.
RESULTS: Among 403 patients (136 Non-Hispanic Whites, 136 African Americans, and 131 Hispanics, 81 of whom were Spanish speaking), the prevalence of PAD within the entire cohort was 16.6‰. The mean ABI was .72 ± .02 for patients with PAD and 1.13 ± .01 for patients without PAD, p < .0001. By race, the prevalence of PAD was 13.2‰ for Non-Hispanic Whites, 22.8‰ for African Americans, and 13.7‰ for Hispanics (p ≡.06). Variables that were considered for the multivariate logistic regression model included age, gender, African American race, Hispanic race, diabetes mellitus, hypertension, current smoking, and hypercholesterolemia. Within the multivariate model, the variables that were statistically significantly associated with PAD included age (relative risk (RR) 1.0; 95‰ confidence interval (CI) 1.0, 1.1), African American race (RR 1.8; 95‰ CI 1.1, 3.2), current smoking (RR 2.7; 95‰ CI 1.4, 5.1), and diabetes mellitus (RR 2.8; 95‰ CI 1.6, 4.9).
CONCLUSION: Risk factors for PAD are similar to that of many atherosclerotic-type illnesses. Within this cohort, African American race was an independent risk factor for PAD. Reasons for the increased risk for PAD among this minority group may include a genetic predisposition to this disease, inadequate control of atherosclerotic risk factors, or other unidentified factors (i.e, environment). Further research is needed to better define the magnitude of the burden of PAD in African Americans and to determine the extent to which risk factor management can improve limb outcome.

**ARE THERE RACIAL DIFFERENCES IN PRIMARY CARE PATIENT-PHYSICIAN COMMUNICATION ABOUT DEPRESSION.** L.A. Cooper[1], D.L. Roter[1], M.B. Rockeymoore[1], R.L. Johnson[1], D.E. Ford[1]; [1]Johns Hopkins University, Baltimore, MD *(Tracking ID #51669)*

BACKGROUND: African Americans (AAs) are less likely than whites to be recognized as depressed and offered pharmacotherapy by primary care physicians (PCPs). They also underutilize specialty mental health services.
METHODS: We conducted a cross-sectional study of primary care office visits using audiotape analysis and post-visit surveys to compare patient-physician communication about depression and PCP management of mental health problems in visits with AA and white patients. The settings were 15 urban primary care practices where 252 adults (142 AA, 110 white) were receiving care from 31 physicians (18 AA, 13 white). Depression was classified as a score of 16 or higher on the Center for Epidemiologic Studies Depression Scale (CES-D). Main outcomes were communication behaviors (patient-centeredness and depression-specific talk)obtained from content coding of audiotapes using the Roter Interaction Analysis System and PCP reports of emotional management and perceptions of patients.
RESULTS: Patients were 69% women, with mean age 47 years and 18% college graduates. Twenty percent (n = 57) were classified as depressed by the CES-D, with no racial differences in CES-D score or education. Among patients with depressive symptoms, the average number of depression-related statements (including medical, psychotherapeutic, and therapeutic regimen) by physicians was lower for AA than white patients (2.2 vs 14.8 statements, p = 0.04). Overall, physicians had lower rates of assessing depression (36 vs 49%), prescribing psychotropic medication (6 vs 17%), or referring AA patients (7 vs 20%), and higher anticipated rates of AA patient resistance to depression diagnosis or treatment. Younger, white, women physicians engaged in more depression-related conversation with AA patients than their counterparts. AA PCPs reported higher anticipated levels of AA patient resistance to a psychiatric diagnosis (64 vs 48%) and acceptance of a treatment plan for depression (66 vs 55%) than white PCPs. Compared to white PCPs, AA PCPs were less likely to have assessed AA patients for depression in the past (30 vs 50%), equally likely to counsel patients (32 vs 39%)or to manage them nonmedically [without mental health referral or psychotropic medication] (90 vs 83%), and more likely to attribute patients' symptoms to stress (68 vs 53%). Overall, PCP communication with AA patients (depressed and not depressed)included less emotional talk, more closed-ended questions, and was more verbally dominated by PCPs.
CONCLUSION: This study reveals racial disparities in patient-physician communication (patient-centeredness and depression talk) and PCP perceptions of depressed patients. The disparities are similar among patients of white and AA PCPs. Physician communication skills training programs emphasizing culturally sensitive, patient-centered approaches may improve quality and reduce racial disparities in depression care.

**OLDER WOMEN AND HIV: HOW MUCH DO THEY KNOW AND WHERE ARE THEY GETTING INFORMATION.** G.M. Corbie-Smith[1], L. Bernstein[2], D.M. St. George[3], S. Henderson[2], J. Doyle[2]; [1]University of North Carolina at Chapel Hill, Chapel Hill, NC; [2]Emory University, Atlanta, GA; [3]Walden University, Minneapolis, MN *(Tracking ID #51886)*

BACKGROUND: During the course of the HIV epidemic, health education messages have primarily targeted the younger populations. Unfortunately, little is known about the extent to which older women may have benefited from those efforts. Our objectives were to identify the extent to which older urban women were knowledgeable about HIV transmission risk factors and to evaluate the relationship between sources of HIV information and HIV knowledge.
METHODS: We conducted a cross sectional survey of women aged 50 and older presenting to a general medicine clinic in an urban, public facility. Trained research assistants administered a questionnaire in a face-to-face interview designed to elicit a variety of information related to HIV in that population. The survey included a battery of nine questions that assessed knowledge of routes and risk of transmission of HIV, responses to which were used to create a score with possible values ranging from 0 – 9 correct answers.
RESULTS: As of December 2001, 238 women aged 50 and older had completed the survey. The majority of the sample was African American (77%), currently or previously married (89%), had not earned a high school diploma (55%), on disability or retired (72%), and heterosexual (98%). While all but one respondent said that they had received HIV information, the sources of information varied. Television was most commonly identified as source (88%) of HIV/AIDS information, with 70% of women reporting friends and 63% reporting family as the next leading sources of information. 49% of respondents identified health professionals as a source of information. Most respondents (79%) were satisfied or very satisfied with the information that they had received. However, no respondent correctly answered all of the nine knowledge questions. The mean knowledge score was 3.9 out of a possible 9 correct responses [range: 0 (2%) to 8 (1%)]. Younger age, higher educational attainment, employment status, and less spirituality were all associated with higher knowledge scores; whereas marital status, race/ethnicity, religious affiliation, and sexual orientation were unrelated to participants' level of knowledge. Of all sources of information only receipt of information from health professionals was associated with higher knowledge scores ($p \leq 0.05$). In addition, women who were satisfied with the information that they had received were much more likely (OR=2.6, 95%CI 1.2, 5.8) to have higher knowledge scores.
CONCLUSION: In this study, older urban women had limited knowledge of HIV routes and risks of transmission. HIV education specifically targeted to this sub-population is warranted, and our results demonstrate that health professionals may have an important role to play in disseminating such messages.

**THE IMPACT OF A MEDICAL OUTREACH PROGRAM ON HIV-INFECTED RESIDENTS OF SINGLE ROOM OCCUPANCY HOTELS IN THE BRONX.** C. Cunningham[1], S. Shapiro[1], K. Berg[1], G. Sacajiu[1], G. Paccione[1]; [1]Montefiore Medical Center and Albert Einstein College of Medicine, Bronx, NY *(Tracking ID #52216)*

BACKGROUND: HIV continues to be a devastating epidemic among the urban poor, particularly in those unstably housed. Various strategies to facilitate health care delivery to this population have been described. Based on findings from our previous health assessment, we began a medical outreach program that offered services to HIV-infected persons living in Single Room Occupancy (SRO) hotels in the South Bronx. Our objective was to measure the impact of our program on health care service utilization, HIV-related medication use, and perceptions of access to and quality of care.
METHODS: In collaboration with CitiWide Harm Reduction, physicians joined an outreach team offering services to HIV-infected persons placed in SRO hotels by New York City's Division of AIDS Services and Income Support (DASIS). The outreach team offered medical and social services through an innovative on-site delivery system. Interviews were conducted door-to-door in SRO hotels pre-intervention and 12 – 18 months later post-intervention. The 34-item questionnaire included demographic information, health care utilization patterns, status of HIV disease and treatment, perceptions of quality of and access to health care, and patterns of substance use.
RESULTS: The mean age of participants was 41 years; the majority were male (58%), black or Hispanic (94%), and active substance users (62%). When comparing pre- (N = 175) and post-intervention groups (N = 97), the post-intervention group was significantly more likely to report having a primary care doctor (91% vs. 76%, p = .006), receiving regular care (75% vs. 60%, p = .02), and taking medically indicated antiretroviral therapy (68% vs. 51%, p = .08). Quality of and access to care were perceived as "good" or better more frequently in the post-compared to the pre-intervention group (83% vs. 60%, p = .001; and 83% vs. 69%, p = .04 respectively). The mean number of reported hospitalizations over one year was greater post-intervention (8.6 vs. 3.2, p = .07).

CONCLUSION: Encorporating physicians into a community-based outreach team which targets HIV-infected individuals living in SRO hotels is associated with more reported regular medical care, use of HIV-related medications, and better perceived quality of and access to care. Based on these findings a more extensive medical outreach program is being launched.

### ETHNIC DIFFERENCES IN THE UTILIZATION OF ADULT IMMUNIZATIONS IN AN ACADEMIC MEDICAL CENTER.

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BACKGROUND: Significant ethnic disparities exist in adult vaccine utilization. We assessed the receipt of adult immunizations by ethnicity in 5 of our ambulatory care practices.
METHODS: We performed a retrospective review of a computerized medical record system at an academic medical center between July 1, 1997 and June 30, 2000. Patients aged ≥ 50 yrs and with ≥ 2 visits in 3 yrs to general medicine, family practice, diabetes, cardiology, or pulmonary practices, were eligible for review. Immunization rates were defined as adequate if vaccines were given as follows: pneumococcal (PNV) ever, influenza (FLUV) 2 of 3 previous years, and tetanus (TT) ever. Multivariate logistic regression models were constructed to evaluate predictors of immunizations after adjusting for age, sex, clinical diagnosis, practice site, and insurance.
RESULTS: 14,556 patients with mean age of 66 years were included; 47% were White, 23% were Asian, 11% were Black, 10% Russian and 9% Latino. Percent adequate immunization by ethnicity is shown.

| | PNV | FLUV | TT |
|---|---|---|---|
| White | 51 | 27 | 43 |
| Latino | 74 | 41 | 64 |
| Black | 69 | 37 | 58 |
| Russian | 39 | 27 | 32 |
| Asian | 72 | 36 | 63 |

For those ≥ 65 yrs, Asians (OR 1.4, 95% CI 1.2 – 1.67 and Latinos (OR 1.4, 95% CI 1.1 – 1.7) were more likely to have received FLUV. Asians (OR 2.0, 95% CI 1.7 – 2.4) and Latinos (OR 1.5, 95% CI 1.2 – 1.8) were also more likely to have received PNV and TT (Asians OR 2.0, 95% CI 1.7 – 2.3; Latinos OR 1.5, 95% CI 1.3 – 1.9). Russian immigrants (OR 0.4, 95% CI 0.29 – 0.47) were less likely to have received PNV and TT (OR 0.54, 95% CI 0.4 – 0.7). Black patients received immunizations at rates equal to or greater than Whites. Patients seen in general medicine, family medicine, and pulmonary practices were more likely to receive adequate vaccinations compared to cardiology and diabetes practices.
CONCLUSION: Compared to Whites, Asian and Latino patients were more likely to have received recommended immunizations. Acceptance of immunizations by Russian immigrants is low.

### RECEIPT OF PREVENTIVE HEALTH SERVICES AND CITIZENSHIP STATUS.

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BACKGROUND: Several barriers to receiving preventive health care among minorities and immigrants have been identified. Yet, the impact of citizenship status on receipt of preventive health services has not been well described. We assessed the impact of citizenship status on screening for cervical and breast cancer and for hypercholesterolemia among persons living in the US.
METHODS: We analyzed data from 32, 440 adults included in the Sample Adult Prevention Module of the 1998 National Health Interview Survey. The outcomes of interest were serum cholesterol screening in the past five years in men ages 35 – 70 and women ages 45 – 70 (N = 13, 673), Papanicolaou cervical smear (Pap smear) in the past 3 years in women over 18 without a hysterectomy (N = 14, 590) and mammography in the past 2 years in women age 50 or older (N = 7, 141). Logistic regression was used to adjust for potential confounders.
RESULTS: Non-citizens constituted 8.8% of the sample and women 55%. Significantly fewer eligible non-citizens had Pap smear (64% vs. 80%, p = 0.001), mammogram (48% vs. 64%, p = 0.001)or serum cholesterol assessment (52% vs. 73%, p = 0.001). After adjusting for age, race, having health insurance, education level, income, having a regular source of care, seeing a generalist physician in the past year, speaking English and years in the US, non-citizens were significantly less likely to have had Pap smear in past 3 years (adjusted OR .72, 95% CI .56 to .91)and serum cholesterol screening in the past 5 years, (adjusted OR .76, 95% CI .60 to .96) but not mammogram in the past 2 years (OR .86, 95% CI .65 to 1.04.
CONCLUSION: Independent of sociodemographic status and access to care, not being a citizen is a barrier to receive screening for hypercholesterolemia and cervical cancer. Why this status is a barrier and whether it is a barrier to receiving other preventive services is not known.

### RACIAL DISPARITIES IN THE USE OF RADICAL PROSTATECTOMY FOR EARLY-STAGE PROSTATE CANCER.

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BACKGROUND: Using the Surveillance, Epidemiology and End Results (SEER) database, this study examined black-white differences in the treatment of prostate cancer between 1985 and 1997, focusing on the use of prostatectomy in men ≤70 years with early stage disease.
METHODS: 75,148 white and black cases of prostate cancer were identified in four SEER registries with at least 5% of cases identified as black. Rates of prostate cancer diagnoses and treatment were compared across registries, between races and over time. By registry and time period, black-white differences in prostatectomy were calculated using logistic regression adjusted for patient age, tumor stage and grade.
RESULTS: The average age of black and white men declined and the proportion of early-stage and grade disease increased over a thirteen year period. Through 1992, percent yearly increases in prostate cancer diagnoses were greater among whites, after which blacks tended to achieve parity. There was significant regional variability and black-white disparity in the use of radiation and prostatectomy among men ≤ 70 with early-stage disease, with blacks generally more likely to receive radiation and, in adjusted analyses, as low as 0.39 times as likely as whites to receive prostatectomy (p < 0.05). For both races, the frequency of prostatectomy increased between 1985 and 1992, and then leveled off or declined with evidence in most registries of narrowing racial disparities.
CONCLUSION: Disparities in the use of prostatectomy for comparable, early-stage prostate cancer persist despite narrowing differences. Unequal patterns of PSA testing and differences in the diffusion of prostatectomy within black and white subpopulations may have been important influences on temporal changes in black odds of receiving the procedure.

### MULTIPLE RESPONSE FORMATS FOR A HEALTH STATUS INSTRUMENT.

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BACKGROUND: Routine administration of surveys is limited by time, budgets and low literacy — particularly when used in a clinic that services low-income patients. The ability to use multiple response formats depending upon patient or site preference would improve the practicality of routine health status evaluation in the primary care setting. We hypothesized that our health status instrument's psychometric properties would remain sound irrespective of the response format used by the participant.
METHODS: We surveyed patients presenting for their routine office visit at a clinic serving low-income, largely minority, uninsured patients. Respondents were asked to complete a questionnaire, covering demographics, and physical and social functioning questions. 36 participants were assigned to have the responses read to them, 36 were asked to point to "faces" representing those response categories, and 63 responded to the questionnaire in a written format. Responses were summed and transformed into two summary measures as Rasch-scaled logits.
RESULTS: We obtained the same level of completeness (100%) with each format. 75% of participants were female, 70% were age 40 – 60, and 86% were Black. 56% had incomes of less than $9000 per annum and 40% had not completed high school. Criterion validity for the two sub-scales was measured against the SF-36 global health question, and demonstrated a direct, stepped relationship (p = 0.042, p = 0.001). Physical functioning scores were inversely related to age (p < 0.000) and social functioning improved with income (p = 0.002) as measures of construct validity. Group mean scores for each format were within 1 stand error of each other (p = .126). Reliability for the physical functioning scale was .95 and for the social functioning scale was .89. Reliabilities across the multiple formats was not statistically different for either sub-scale (physical, p = 0.616; social, p = 0.309). Respondents in the written response format group were more educated than those in the other groups (p < 0.000) but this did not alter the reliability in stratified analysis. Patients reported a preference for the "faces" response format.
CONCLUSION: The Wellness '00 Health Survey validly and reliably measured health status in this low-income population. Psychometric properties and data quality were equal across all three responses formats. Our data demonstrate that response formats be interchanged for self-reported health status measures in a low-income, primary care setting. This flexibility may improve the practicality of administration of such instruments in this setting.

### DEPRESSION AMONG PATIENTS IN AN URBAN PUBLIC HEALTH SYSTEM.

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BACKGROUND: Depression is the most common mental illness seen in primary care. We hypothesized that the prevalence of depression would be high among a population of primary care patients within a large urban public health system, and that the disability burden of depres-sion would be associated with poor access to health care.
METHODS: This was a stratified cross-sectional probability sample of patients receiving primary care services through the Los Angeles County-Department of Health Services. We performed face-to-face interviews in 6 different languages over a four month period of time with 1,819 adults, for a response rate of 80%. Using a validated screener we measured the prevalence of current depression. We performed bivariate analyses to assess the rates of depression in patient subgroups and multivariate analyses to assess the independent association of depression with access to and receipt of health care within the preceding 12 months.
RESULTS: Eighteen percent of patients met the criteria for a diagnosis of depression. Compared to the rest of the sample, patients who were depressed were more likely to be elderly, women, non-high school graduates, immigrants and in poor health. Depression was independently associated with emergency department care and hospitalization within the preceding year controlling for age, gender, race, education, immigration, insurance status, health status and type of facility. In addition, depression was associated with unmet health care needs.
CONCLUSION: Among a population already at significant risk of unmet health care needs because of low-income and a lack of health insurance, depression is strongly associated with delayed and unmet health care needs. In addition, certain subgroups — the elderly, women and immigrants — appear to be at increased risk from the burden of depression.

### PREVALENCE OF POLITICAL VIOLENCE EXPERIENCES AND HEALTH STATUS AMONG LATINO IMMIGRANTS.

DP. Eisenman[1], L. Gelberg[1], H. Liu[1], M.F. Shapiro[1]; [1]University of California, Los Angeles, Los Angeles, CA *(Tracking ID #51627)*

BACKGROUND: Political violence (PV) is widespread but little is known about the prevalence of PV experiences and their impact on health among primary care populations in the United States.

METHODS: Beginning in July 2001, we interviewed a systematic sample of Latinos in three primary care clinics in Los Angeles. Eligible patients were 18 years or older and born in Latin America. Subjects completed face-to-face screening interviews to assess PV exposure (including war-related violence and torture) using an event-specific inventory constructed from validated measures, cognitively tested and refined for this population. All subjects reporting a positive response to any PV item, and a random sample of those who did not, completed 45 minute interviews that included instruments to assess health status (PTSD Checklist, PRIME-MD) and communication with physicians about PV.
RESULTS: Of 591 patients sampled for the study, 442 (75%) were eligible; 290 (66%) agreed to participate (male 26%; mean (SD) age 47 (13) years; mean years in US, 14 (9); El Salvador 39%, Mexico 32%; Guatemala 20%; Other 10%). Overall, 47% of the 290 subjects screened positive for exposure to PV: 8% reported torture, 3% rape, 6% nearly being killed by intentional violence and 14% witnessed rape/murder/torture of a family member; 22% reported forced disappearance of a family member, 22% witnessed mass violence, and 27% reported their life endangered by weapons attacks. Rates of reported exposure to PV did not differ by clinical site, age, gender, or educational status (p>0.05). There were no group differences in age, gender, and education between subjects who did and did not report PV. Compared to patients from Mexico, patients from Central America reported on average more PV events (0.4, 2.0, 1.7, for Mexico, El Salvador, Guatemala respectively, p < .05 ANOVA) and more severe PV events (4%, 18%, 14%, for Mexico, El Salvador, Guatemala respectively, p < .05). Patients reporting PV had higher mean symptom scores on the PTSD Checklist (36 vs. 31, p < .05, range 17 – 71) compared with patients not reporting PV . Patients reporting severe PV (defined as reporting either rape, or torture, or nearly being killed by violence, or witnessing rape/murder/torture of family member) had more panic syndromes (25% vs 5%, p < .001), other anxiety syndromes (15% vs 6%, p = .03), alcohol abuse (13% vs 4%, p = .01), and higher mean PTSD symptom scores (41 vs 33, p = .0006) than those not reporting severe PV. Only 3% of patients reporting PV ever told a U.S. physician about it; none reported their current physician ever asking about PV.
CONCLUSION: This is the first study to find high rates of PV in Latino primary care patients. Primary care physicians caring for Latino immigrants need to address this important issue in their patients.

**LONGITUDINAL ASSESSMENT OF ACCESS TO AND USE OF HEALTH CARE SERVICES BY MALE AND FEMALE HIV-INFECTED VIOLENCE VICTIMS IN THE UNITED STATES.** D.P. Eisenman[1], W.E. Cunningham[1], S. Zierler[2], T. Nakazono[1], M.F. Shapiro[1]; [1]University of California, Los Angeles, Los Angeles, CA; [2]Brown University, Providence, RI *(Tracking ID #51628)*

BACKGROUND: Violence is common among HIV-infected persons but less is known about whether violence is associated with subsequent increased use of health services or diminished access to health care and whether any such associations differ among heterosexual women, gay/bisexual women, heterosexual men, and gay/bisexual men.
METHODS: To explore these issues we analyzed data from the HIV Costs and Services Utilization Study, a nationally representative study of HIV-infected persons in care. Violence victimization was assessed at the baseline interview (conducted 1/96 to 4/97) by asking, "Since your HIV diagnosis, have you ever been physically hurt by your partner or someone important to you?" At first follow-up (median interval = 243 days from baseline), use of care was measured in four areas: ambulatory care, emergency care (ER), hospital care and outpatient mental health care; access to care was measured with three items asking about urgent care, access to specialists, and expense of care. We categorized the sample according to their reports of violence, gender and sexual preference and compared the effect of violence within gender/sexual preference groups. Unadjusted and adjusted logistic regression analyses with odds ratios (OR) and 95% confidence intervals were used to examine the association of violence reported at baseline with use of care and access to care at first follow-up.
RESULTS: The study population (baseline N = 2864; follow-up N = 2466) was 24% women, 53% gay/bisexual males, 24% heterosexual men; 13% reported violence victimization. All results reported are significant at p < 0.05. In multivariate analyses controlling for age, race, insurance, income, education, lowest CD4 count, and drug/alcohol dependence, victims of violence reported greater use of ER services (OR = 1.6) and greater use of mental health services (OR = 1.8); they also reported poorer access to medical specialists (OR = 1.7) and more often going without medical care because of price (OR = 1.5), compared to non-victims of violence. Women victims of violence reported increased use of mental health services (OR = 2.8). Male heterosexual victims of violence reported increased use of hospital services (OR = 2.6). Male gay/bisexual victims of violence reported increased use of ER care (OR = 1.8). Male gay/bisexual victims of violence also were more likely to report poor access to medical specialists (OR = 2.0), going without medical care because of price (OR = 1.9), and poor ability to get medical care when needed (OR = 2.7) compared to non-victims of violence.
CONCLUSION: Violence victimization is associated with increased use of non-primary care services and is associated with decreased reported access to care, especially among male gay/bisexuals. Clinicians and policy-makers need to address relationship violence among HIV+ persons and its relationship to increased use of non-primary care services.

**LITERACY AND LEVEL OF ANTICOAGULATION AMONG PATIENTS ON WARFARIN.** C.A. Estrada[1], C. Collins[1], M. Martin-Hryniewicz[1], B.T. Peek[2], J.C. Byrd[1]; [1]East Carolina University, Greenville, NC; [2]Asheville Dept of Veteran Affairs Medical Center, Asheville, NC *(Tracking ID #50152)*

BACKGROUND: To ensure effectiveness and decrease risks, the use of warfarin requires frequent monitoring and dose adjustment. Literacy, the ability to use printed material to function in society, may have implications on the patients' ability to follow dosing schedules and therefore the level of anticoagulation. The objectives were to assess literacy skills among patients on warfarin and to explore the association between literacy and level of anticoagulation or compliance.
METHODS: Cohort study of 143 consecutive patients attending two anticoagulation management units. At baseline, we measured literacy with the Rapid Estimate of Adult Literacy in Medicine (REALM, a word recognition test). During a 3-month follow-up period we collected level of anticoagulation (defined as % of INR values <1.5 or > 4 and maximum INR) and compliance with office visits (number of missed visits).RESULTS: The mean patient age was 65 years (SD 9.8), 29% were non-white. During follow-up, 5.8 INR tests per patient were performed (SD 2.7). Thirty-eight patients (26%) were only able to read health-related words at less than the seventh grade level. The level of anticoagulation was similar among patients with varying literacy levels, see table. Compliance with office visits was also similar among patients with varying literacy levels (P = 0.9). Patients' self-reported grade completed was higher than the measured literacy grade level (kappa = 0.2). Self-reported grade completed overestimates the ability to read health-related words. While 79% of the sample had completed at least eight grades, only 46% had a REALM score at that grade level. INR = International Normalized Ratio.
CONCLUSION: Low literacy is prevalent among patients taking warfarin. In patients attending two anticoagulation management units, literacy level does not seem to be associated with level of anticoagulation or compliance with office visits.

| Grade REALM | INR <1.5, % of Tests | INR >4, % of Tests | Maximum INR | Total n (%) |
|---|---|---|---|---|
| ≤ 3rd | 13 ± 26 | 7 ± 12 | 3.5 ± 1.4 | 16 (11%) |
| 4 – 6 th | 5 ± 8 | 4 ± 8 | 3.5 ± 1.2 | 22 (15%) |
| 7 – 8 th | 6 ± 11 | 12 ± 21 | 3.8 ± 1.2 | 37 (26%) |
| ≥ 9 th | 6 ± 16 | 5 ± 10 | 3.3 ± 1.1 | 68 (48%) |
| P value | 0.6 | 0.3 | 0.2 | 143 (100%) |

**IMPACT OF INTERPRETATION METHODS ON CLINIC VISIT LENGTH.** M.J. Fagan[1], J.A. Diaz[1]; [1]Brown Medical School, Providence, RI *(Tracking ID #50720)*

BACKGROUND: Although the increase of non-English speaking persons in the United States has created an increased need for interpretation services in health care settings, few studies have examined how different methods of interpretation affect the process of outpatient care. We conducted an observational study in an urban, hospital-based primary care clinic to determine the effect of different methods of interpretation (hospital employed, full-time interpreter (HI); telephone interpreter (TI); or patient-supplied interpreter (PSI)) on visit length.
METHODS: Over a six-week study period, a research assistant recorded the following information for consecutive patient visits: patient age, gender and insurance type; type of interpreter used (none, HI, TI, or PSI); scheduled visit length (15, 20, 30 or 40 min.); provider type (nurse practitioner; attending physician; resident in postgraduate year 1, 2 or 3; or medical student); provider gender; time the patient spent in the exam room with the provider (visit time); and total patient time in the clinic from check-in to check-out. Mean visit times for the four interpreter groups were compared using chi2. Variables that were significant in the univariate analysis were included in a regression model to determine the excess visit time, if any, associated with each interpreter method.
RESULTS: Of the 613 visits, 441 (71.9 %) used no interpreter, 51 (8.3%) used a HI, 31 (5.1%) used a TI, and 90 (14.7%) used a PSI. The large majority of patients requiring interpretation were Spanish-speaking. Mean patient age was 48.3 years, 55% were female, and 26% had no health insurance. In the univariate analysis, the mean visit times for the groups were: no interpreter, 28.0 min. (SD 13.3); HI, 26.8 min. (SD 11.7); TI, 36.3 min. (SD 13.0); and PSI 34.4 min. (SD 13.5), p < 0.001 for differences between groups. Patient gender, age, insurance status, scheduled visit length, and provider gender were not associated with visit time, but provider type was significantly associated with visit time. In the regression model of visit time that included provider type and interpreter type, TI use and PSI use were associated with significantly longer visit times: 8.3 min. (95%CI 3.9 – 12.8); p < 0.001), and 4.6 min. (95%CI 1.8 – 7.3); p < 0.001) respectively. HI use was not associated with significantly longer visit times.
CONCLUSION: In our setting, telephone interpreters and patient-supplied interpreters were associated with significantly longer visit times, but full-time hospital interpreters were not. Further study is needed to understand the reasons for these differences and to determine whether different methods of interpretation affect other outcomes such as patient satisfaction.

**PATIENT CENTERED CARE FOR LOW INCOME PATIENTS: MISSED OPPORTUNITIES.** K. Felix-Aaron[1], N. Gine-Nokes[2], H. Burstin[1], H. Bauchner[2]; [1]Agency for Healthcare Research and Quality, Rockville, MD; [2]Boston Medical Center, Boston, MA *(Tracking ID #50458)*

BACKGROUND: Patient centered care (PCC) seeks to increase patients' participation in care in order to improve patient outcomes. However, it is not clear that these practices have been well studied in minority and low-income patients. We undertook a systematic review of the literature to characterize the experience of low-income patients in the clinical encounter.
METHODS: We searched Medline from 1966 to 2001 to identify original research articles that described clinical encounters that included low-income patients. We selected for review those articles with at least one aspect of PCC (communication, partnership, and health promotion) that included low-income patients.
RESULTS: We found 140 articles that focused on one aspect of PCC of which 19 included low-income patients (12,384). The patients were primarily adults (>75%), poorly educated (15 – 50%) and minority (10 – 88%). The majority of providers were primary care physicians and white. There were 5 surveys, 2 clinical trials and 12 observational studies. The majority of studies (80%) focused on communications. In these studies, communication was asymmetric and did not favor patients. For example, several noted frequent patient interruption and few opportunites for patient participation. In studies that included patients of diverse sociodemographic backgrounds (n = 7), less well-educated and language and ethnic minority patients experienced poorer communication than their counterparts. A minority of studies addressed partnership and health promotion (n = 4). While partnerships between patient and physicians were infrequently observed by study investigators, patients reported physicians' decision making as highly participatory.

CONCLUSION: This synthesis of the literature suggests that PCC is infrequently studied in low-income patients and that these patients receive less patient centered care compared to their more advantaged counterparts. Creative strategies will need to be developed to ensure that PCC is available to all patients.

**RACIAL AND SOCIOECONOMIC DISPARITIES IN MANAGED CARE SETTINGS: VARIATION IN HEDIS MEASURES PERFORMANCE FOR CARDIOVASCULAR CARE.** A.M. Fremont[1], S.L. Wickstrom[2], C.E. Bird[1], M.M. Shah[2], T.S. Rector[2], A.S. Bierman[3], T.V. Horstman[2], J.J. Escarce[1]; [1]RAND, Santa Monica, CA; [2]Center for Health Care Policy and Evaluation, Minneapolis, MN; [3]AHRQ, Rockville, MD *(Tracking ID #52394)*

BACKGROUND: Racial and socioeconomic disparities in the quality of care are well documented, yet little is known about the extent of disparities in managed care, in part, because data on race or socioeconomic status (SES) is not routinely collected by plans. We assessed disparities in health care quality for cardiovascular disease and diabetes, a cardiac risk factor.
METHODS: We obtained claims and enrollment data from 10 commercial and 9 Medicare plans affiliated with UnitedHealthcare representing 2,151,050 and 195,116 privately and Medicare insured enrollees, respectively. NCQA HEDIS 2000 specifications were applied to compute 6 HEDIS measures (e.g., B-blocker after MI) and a non-HEDIS measure (ACE-inhibitor with CHF). Four HEDIS measures requiring chart review (e.g., blood pressure control) were obtained from a subset of plans. Previously validated measures of race and SES were obtained by geocoding enrollees' address to 1990 Census data at the Block-Group level. An individual-level measure of race was obtained from CMS for Medicare enrollees. Statistical analyses consisted of Chi-Square tests and multiple logistic regressions. Logistic regression models included race and/or poverty, plan, age, gender, and geocoded measures of education and occupational class.
RESULTS: Among Medicare enrollees, performance was worse for blacks for 10 of 11 measures with the absolute disparity exceeding 15% for 4 measures: B-Blocker after MI 23 % (95% CI 6–40%); LDL-C after cardiac event 17% (95% CI 4–29%); Lipid profile in diabetics 21% (95% CI 19–23%); and HgbA1c control 16% (95% CI 7–24). Results were unchanged whether race was measured using a geocoded or individual level measure. The pattern of SES disparities was similar with performance for 9 of 11 measures worse for poor enrollees. The absolute disparity exceeded 15% for two measures: B-blocker after MI 19% (95% CI 4–34%) and lipid profile in diabetics 19% (95% CI 17–21%). Among commercial enrollees 7 of 11 measures showed significant disparities for both vulnerable subgroups but only one disparity of 15% or more: LDL-C control after cardiac event, absolute racial disparity of 15% (95% CI 2–28%). Analyses with plan fixed effects did not alter these basic results. After adjustment for other covariates racial and SES disparities persisted for 6 and 4 of 11 measures, respectively, among Medicare enrollees. Among commercial enrollees, racial and SES disparities remained significant for only 1 and 4 of the measures, respectively.
CONCLUSION: We found moderate to large racial and socioeconomic disparities in quality on a variety of measures among health plan enrollees. By measuring differences in performance for low income and minority enrollees, plans may be able to develop and target interventions to reduce identified disparities.

**ACCESS TO RESEARCH TRIALS AND EXPERIMENTAL TREATMENTS FOR PATIENTS WITH HIV INFECTION.** A.L. Gifford[1], W.E. Cunningham[2], K.C. Heslin[3], R.M. Andersen[3], T. Nakazono[3], D. Lieu[1], M.F. Shapiro[3], S.A. Bozzette[1]; [1]University of California, San Diego, San Diego, CA; [2]University of California, Los Angeles, Santa Monica, CA; [3]University of California, Los Angeles, Los Angeles, CA *(Tracking ID #52227)*

BACKGROUND: To help assure that trial results are generalizable and clinically useful, populations that enroll in trials and receive investigational drugs should reflect the racial and ethnic heterogeneity of all patients in care. We therefore assessed and compared research participation across patients in care for HIV.
METHODS: We interviewed a population-based multi-stage probability sample of adults with HIV (N = 2864) representing the full population in clinical care in the contiguous United States (N = 231,400) 3 times between 1996–1998. We asked about sociodemographics, clinical status, attitudes, health services, participation in medication trials or studies (each interview), and past receipt of experimental HIV medications (baseline interview).
RESULTS: Fourteen percent were in a medication trial or study at one or more interviews. Of HIV-infected adults in care, 10% were in a medication study at baseline, 32% had tried to get experimental medication at some time, and 24% had received experimental medication. In multiple regression models, African-Americans and Hispanics were less likely to be in a medication trial or study (odds ratio [OR] 0.51 [95% CI, 0.29 to 0.91]; OR 0.58 [CI, 0.35 to 0.95] respectively) or to have ever received experimental medication (OR 0.41 [CI, 0.32 to 0.54]; OR 0.56 [CI, 0.41 to 0.78]). Private health maintenance organization patients were less likely than private fee-for-service to be in a medication research study (OR 0.42, [CI, 0.20 to 0.86]). Patients with less education (OR 0.42 [CI, 0.28 to 0.64]) and patients located 8 or more miles from an HIV clinical trial center (OR 0.41 [CI, 0.26 to 0.64]) received experimental medications less often. Among those who sought experimental treatment, non-Hispanic whites were more likely than African-Americans or Hispanics to get it.
CONCLUSION: Many HIV patients are in trials or have received experimental therapy through expanded access, but race, ethnicity, insurance, and education influence study enrollment and many patients do not receive innovative experimental treatments equally. Policy efforts to address imbalances in research enrollment and access to innovative treatment are justified.

**FOREIGN BIRTH AS A BARRIER TO CANCER SCREENING.** M.S. Goel[1], C.C. Wee[1], E.P. Mccarthy[1], Q. Ngo-Metzger[1], R.B. Davis[1], R.S. Phillips[1]; [1]Beth Israel Deaconess Medical Center, Boston, MA *(Tracking ID #50919)*

BACKGROUND: Immigrants constitute over 10% of the U.S. population and are expected to increase in number. Small studies show that some immigrant groups have lower cancer screening rates than non-immigrants. We used a national sample to examine whether foreign birth (FB) is an independent barrier to cancer screening.
METHODS: We used data from the 1998 National Health Interview Survey, a nationally representative household survey (n = 32,404). We used multivariable logistic regression to examine the relationship of FB and Pap smear use in the last 3 years among women aged 18–75 (n = 12,897), mammography use in the last 2 years among women aged 50–75 (n = 5474), fecal occult blood testing in the last year among adults aged 50–75 (n = 11,424), and proctoscopy (sigmoidoscopy) in the last 5 years among adults aged 50–75 (n = 11,361). Data were weighted to reflect the national population and analyzed using SUDAAN software to adjust for the sampling scheme. We constructed models adjusting for age, race, sex, marital status, region, comorbid illnesses, hospitalizations in the past year, depression, self-reported health status, smoking, and education (Model 1). We then adjusted further for access to care (insurance, number of physician visits in the past year, and usual source of care) (Model 2).
RESULTS: The mean age of adults was 45 years; 13% were FB, 52% were female, 23% were college educated, and 91% had some usual source of care. FB adults were younger than U.S.-born adults (42 vs. 45 years), more likely to be nonwhite (72% vs. 18%), have less than HS education (33% vs. 16%), be uninsured (28% vs. 12%), and have no usual source of care (17% vs. 8%). Compared with U.S.-born adults, FB adults had lower rates of Pap smears (73% vs. 85%), mammography use (67% vs. 73%), fecal occult blood testing (33% vs. 44%), and sigmoidoscopies (23% vs. 30%) (p<0.01 for each). After adjustment using Models 1 and 2 (see Table below), FB adults remained significantly less likely to undergo Pap smears and fecal occult blood testing. FB adults were also less likely to undergo sigmoidoscopies, but these results were not statistically significant.
CONCLUSION: Foreign-born individuals are less likely to receive some forms of cancer screening than U.S.-born individuals. These differences cannot be explained by disparities in access to care (as measured by insurance, usual source of care, and physician visits). Foreign-born individuals should be targeted for increased cervical and colorectal cancer screening.

**Adjusted Odds Ratios (95% CI) for Screening of Foreign-born Compared with U.S.-born**

| | Pap Smear | Mammogram | Stool Blood | Sigmoidoscopy |
|---|---|---|---|---|
| Model 1 | 0.57 (0.48–0.69) | 0.86 (0.66–1.11) | 0.74 (0.61–0.89) | 0.85 (0.69–1.06) |
| Model 2 | 0.65 (0.52–0.79) | 1.03 (0.77–1.37) | 0.79 (0.64–0.97) | 0.90 (0.72–1.12) |

**ASIAN RACE AND FOREIGN BIRTH AS BARRIERS TO BREAST CONSERVING SURGERY FOR EARLY STAGE BREAST CANCER.** M.S. Goel[1], R.B. Burns[1], E.P. Mccarthy[1], Q. Ngo-Metzger[1], R.B. Davis[1], M.B. Hamel[1], R.S. Phillips[1]; [1]Beth Israel Deaconess Medical Center, Boston, MA *(Tracking ID #50960)*

BACKGROUND: Breast conserving surgery (BCS) has been the recommended treatment for early stage breast cancer since 1990 and yet many women still do not receive this procedure. We undertook this study to determine if Asian women and particularly Asian immigrant women are less likely to receive BCS.
METHODS: Demographic information and cancer characteristics were obtained on women diagnosed with stage I or II breast cancer from the 1988–1997 public use Surveillance, Epidemiology, and End Results (SEER) database. Analyses were limited to women from Seattle, San Francisco/Oakland, and Hawaii (n = 35,639) because these registries include 94% of all Asian women in the SEER database. We calculated unadjusted rates of BCS and then created 3 logistic regression models which adjusted for age, marital status, cancer registry, date of diagnosis, and stage at diagnosis. We compared white women (n = 30,081) with all Asian women combined (n = 5558). Then, we compared white women with 3 subgroups of Asian women [U.S.-born (n = 2593), foreign-born (n = 1639), and unknown birthplace (n = 1326)]. Finally, we compared U.S.-born Asian women with foreign-born and unknown birthplace Asian women.
RESULTS: Overall, the mean age of women was 61 years; 58% were married, 57% were diagnosed with stage I disease, and 16% were Asian. Compared to white women, Asian women were younger (mean age 58 vs. 62 years), more likely to be married (64% vs. 57%), more likely to be diagnosed after 1996 (14% vs. 11%), and less likely to be diagnosed with stage I disease (55% vs. 58%). Compared with U.S.-born Asian women, foreign-born Asian women were younger (mean age 55 vs. 60 years), more likely to be married (67% vs. 62%) and less likely to be diagnosed with stage I disease (50% vs. 59%). In the unadjusted analysis, Asian women had lower rates of BCS than white women (42% vs. 50%, p < 0.01). In the adjusted analysis, Asian women remained significantly less likely to have BCS than white women [adjusted odds ratio 0.66 (95% CI 0.61–0.71)]. These differences persisted for all 3 subgroups of Asian women. U.S.-born Asian women [0.86 (0.77–0.97)], foreign-born Asian women [0.64 (0.57–0.71)], and unknown birthplace Asian women [0.53 (0.47–0.60)] were all less likely to have BCS than white women. Lastly, foreign-born Asian women [0.68 (0.58–0.80)] and unknown birthplace Asian women [0.55 (0.47–0.66)] were less likely to have BCS than U.S.-born Asian women.
CONCLUSION: Overall, Asian women have significantly lower rates of breast conserving surgery than white women. Additionally, Asian women of foreign and unknown birthplace are less likely to receive BCS than U.S.-born Asian and white women. The reasons for these differences are unclear but may reflect inequities in the treatment of breast cancer for Asian women.

**SUBSTANCE USE AND HOMELESSNESS AMONG VETERANS WITH HIV.** A.J. Gordon[1], J. Conigliaro[1], K.A. Mcginnis[1], L. Rabeneck[2], A.C. Justice[1]; [1]Center for Health Equity Research and Promotion, VA Pittsburgh Healthcare System and University of Pittsburgh, Pittsburgh, PA; [2]Baylor College of Medicine, Houston, TX *(Tracking ID #52259)*

BACKGROUND: Homeless HIV+ persons may have higher rates of substance use that may influence HIV disease transmission, progression and medication compliance. We sought to

determine the prevalence of homelessness among HIV+ veterans and compare rates of substance use by homeless status.
METHODS: We used data from the Veterans Aging Cohort 3 Site Study (VACS 3), a study of HIV+ veterans seen in infectious disease clinics (representing 86% of HIV-infected individuals at these clinics) at three VA sites (Cleveland, Houston, and Manhattan). We measured alcohol use with the Alcohol Use Disorders Identification Test (AUDIT), history of binge drinking ≥6 drinks on one occasion), and current and past history of illicit drug use. We measured homelessness by asking, "In the past four weeks, have you ever been without a permanent address that you call home?" and "Have you ever been without a permanent address you call home?" We compared AUDIT scores, binge drinking, and illegal drug use behavior by categorical analysis by past and present homeless status.
RESULTS: Of 881 HIV+ veterans, 267 (32%) indicated prior homelessness. Overall, the mean age was 49 years, 99% were male, and 55% were African-American. Among all subjects with a history of homelessness, 53 (20%) were homeless in the prior four weeks. Younger veterans (<50 years) were more likely to have ever been homeless compared to older veterans (38% vs. 23%, p < 0.001) and minority veterans were more likely to have ever been homeless than caucasian veterans (34% vs. 23%, p < 0.02). Overall, 351 (40%) drank alcohol, 177 (21%) were hazardous drinkers, and 290 (35%) reported binge drinking. Compared with non-homeless veterans, those with a history of homelessness were more likely to be smoking (63% to 51%, p = 0.001) and be hazardous drinkers (29% to 17%, p < 0.001). Binge drinking behavior did not vary by history of homelessness. A larger proportion of homeless veterans admitted to illegal drug use (66% vs. 44%, p < 0.001). Results were similar when stratified by age and minority status.
CONCLUSION: A significant proportion of HIV+ persons have history of homelessness and are currently homeless. Compared to non-homeless HIV infected veterans, the homeless have substantially higher rates of smoking, hazardous drinking, and illegal drug use.

**IMPACT OF PATIENT REFUSAL ON RACIAL/ETHNIC VARIATION IN THE USE OF INVASIVE CARDIAC PROCEDURES.** H.S. Gordon[1], D.A. Paterniti[2], N.P. Wray[1]; [1]Houston VAMC, Houston, TX; [2]University of California, Davis, Sacramento, CA *(Tracking ID #52122)*

BACKGROUND: Racial variation in the use of invasive cardiac procedures is well described in the medical literature. Prior studies suggested that differential patient refusal of doctors' recommendations explained a portion of the variation in procedure use. Therefore we designed a study to identify patient refusers and to explore the determinants of their health seeking behaviors.
METHODS: We prospectively enrolled patients at two sites in our medical center. Patients undergoing scheduled treadmill testing (TMT; n = 482) or cardiac catheterization (CATH, n = 400) at a large tertiary care VA medical center from September 2, 1999 to May 31, 2000 were approached and 78.9% (n = 696) consented to participate. Data were collected by direct observation of doctor and patient verbal behavior and by review of medical charts. Information recorded included doctors' verbal and written recommendations for subsequent invasive cardiac procedures including CATH, percutaneous coronary intervention (PCI), or bypass surgery (CABG). Recommendations were recorded when a clear statement of recommendation was identified. We reviewed patients' charts for a minimum of 3 months post-test follow-up to determine if treatment recommendations were followed through. Patients' race was self-identified and was classified as white, black, or Hispanic. We planned to conduct focus group interviews homogeneous by patient acceptance and race/ethnicity, but were unable to identify enough refusers to conduct focus groups. We report here our experience identifying patient acceptance of doctors recommendations.
RESULTS: Patient refusal of a doctor's recommendation was a rare event. For patients who underwent a TMT and received a recommendation for CATH there were no procedures canceled because of patient refusal. Further, there was no significant racial variation in the distribution of CATHs, PCIs, or CABGs recommended or received (P = .39, P = .56, and P = .49) in Black, Hispanic, and white patients. For patients who underwent CATH there were no PCI procedures canceled because of outright patient refusal. Out of 52 recommended CABGs there was only 1 outright patient refusal to undergo surgery and 3 patients opted for CABG after receiving recommendation for both PCI and CABG.
CONCLUSION: The rate of patient refusal was surprisingly low given previously reported refusal rates. Though refusal rates probably vary among different diseases and treatments, trying to identify outright patient refusals may be the wrong approach. Patients may negotiate with doctors or doctors may detect patient preferences and alter recommendations accordingly. These communication patterns may be more likely when treatment is discretionary, or primarily for relief of symptoms or improved physical functioning. Future study of racial/ ethnic variation in communication is suggested.

**RACIAL VARIATION IN DOCTOR-PATIENT COMMUNICATION AFTER CARDIAC CATH.** H.S. Gordon[1], R.L. Street[2], P.A. Kelly[1], N.P. Wray[1]; [1]Houston VAMC, Houston, TX; [2]Texas A&M University, College Station, TX *(Tracking ID #52311)*

BACKGROUND: Although racial variation in the use of invasive cardiac procedures is well documented, studies have not examined whether doctor-patient communication varies by race/ ethnicity. The purpose of this study is to examine predictors of doctor-patient communication in the medical interaction immediately following coronary angiography (CATH).
METHODS: We prospectively enrolled eligible patients presenting for CATH at a large tertiary care VA hospital from March – September 2001. We excluded patients who had prior percutaneous coronary intervention (PCI), prior coronary bypass surgery (CABG), or combined CATH and PCI. Participating patients (n = 131) and physicians (n = 7) gave informed consent to have the post-CATH medical interaction tape recorded. Audio-tapes of suitable quality for transcription (n = 117) were examined and coded for several elements of patients' and doctors' communication, including doctors' total number of utterances (MDUTT), information giving (IG), doctors' partnership building style, and active patient participation (APP). Patients' demographics and clinical information were collected by survey and review of the medical record. Patient race/ethnicity was self-identified and was classified as Hispanic, White, or Black. Data were analyzed with ANOVA to compare among multiple group means and ANCOVA to determine the independent relationship among multiple potential predictors of communication.
RESULTS: Post-CATH medical interactions were generally brief with a mean MDUTT of 28.7. However, the doctors' style was important as the number of utterances varied among doctors (range 17 to 42, r-square = .15, P < .001). In addition, the mean number of MDUTT varied by patient race/ethnicity (26, 18, or 30 mean utterences for Black, Hispanic, or white patients, respectively, r-square = .02, P < .001). Moreover, the mean number of doctors' IG utterences also varied by doctor (range 8 to 26, P = .002) and by race/ethnicity (13, 11, and 16 mean IG utterences for Black, Hispanic, or White patients, respectively, P < .001). APP was a significant predictor of the number of MDUTT and IG (Beta = 10.5, r-square = .59 and Beta = 6.3, r-square = .62; P < .001, respectively). After adjusting for APP and doctor identifier, patient race/ethnicity was not a significant predictor of either MDUTT or IG utterences (P = .72 and P = .95, respectively). Finally, APP was increased (P = .001) according to whether the doctor exhibited partnership building, but not (P > .05) according to patient race, education, or income.
CONCLUSION: We have found that in the post-CATH interaction doctors give more information to White than Black than Hispanic patients. One possible explanation for this, based on our results, is that there is some strong relationship between race and patient participation. Further, we have found that active patient participation leads to more discussion by the doctor and that active patient participation can be determined by the doctors' style.

**CERVICAL CANCER SCREENING RATES IN HAITIAN COMMUNITIES IN THE GREATER BOSTON AREA.** E.H. Green[1], L.K. Ko[1], M. Posner[1], K.M. Freund[1], N. Prudent[1], M. David[1]; [1]Boston University, Boston, MA *(Tracking ID #51275)*

BACKGROUND: Delayed detection may account for poorer cervical cancer outcomes in minority and immigrant women. There has been little research into cervical cancer screening practices of Haitian immigrants to the United States. We attempted to determine predictors of cervical cancer screening among Haitian immigrant women.
METHODS: As part of a study on cancer screening behaviors we performed a cross-sectional survey of women 40 years old and over from randomly selected households in neighborhoods with high concentrations of Haitian women. Trained bilingual interviewers conducted in-person interviews in English or Haitian Creole using a standardized instrument to assess health care practices, socioeconomic status, and health beliefs. A Pap smear done within three years was considered appropriate screening. We created a model using stepwise logistic regression with ethnicity and statistically significant variables from bivariate analysis considered as predictors of screening.
RESULTS: 404 women (78%) participated. Overall, screening rates were high (82% [95% CI 78% – 86%]). In bivariate and multivariate analysis, Haitian women had no statistically significant difference in their rate of screening when compared to U.S. born women (including African-Americans) or other immigrant women. Statistically significant (p < 0.05) predictors of screening in bivariate analysis included age less than 65 (86% screened vs 69% 65 y.o.), self-reported knowledge about Pap smears (86% vs 48%), obtaining a screening mammography within 1 year (89% vs 70%), having a "check-up" visit within 2 years (87% vs 49%), type of insurance (87% public insurance, 84% private insurance, 63% no insurance), having a single site of medical care (84% vs 56%), and having a female physician (89% vs 81% male physician). There was a trend towards higher screening rates in women with more education, higher incomes, a less fatalistic outlook, and those who were married or living with a domestic partner. Predictors of screening from multivariate analysis (adjusted for other predictors and ethnicity) were age <65 (OR 2.7 [95% CI 1.3 – 5.6]), having a "check-up" (OR 5.1 [2.2 – 12.1]), knowledge of Pap smear (6.1 [2.3 – 15.8]), being married or having a domestic partner (2.2 [1.1 – 4.5]), and having a mammogram (2.1 [1.1 – 4.2]).
CONCLUSION: Haitian women had a high rate of cervical cancer screening, similar to other immigrants and non-immigrants who live in the same neighborhoods. Future efforts in understanding the difference in mortality and morbidity of cervical cancer in this population should focus on other aspects of care including follow-up and therapy.

**LITERACY AND KNOWLEDGE, ATTITUDES, AND BEHAVIORS ABOUT SELF-BREAST EXAMINATION AND MAMMOGRAPHY IN PUERTO RICAN WOMEN.** C.E. Guerra[1], M.J. Krumholz[1], J.A. Shea[1]; [1]University of Pennsylvania Health System, Philadelphia, PA *(Tracking ID #52303)*

BACKGROUND: Hispanic women are less likely to receive breast cancer screening than other women in the United States. One hypothesized barrier to undergoing cancer screening tests is low literacy. Hispanic populations represent a particularly high-risk group for low functional health literacy (FHL) due to the prevalence of English as a second language and a lower educational status. This study evaluated the knowledge, attitudes, and behaviors about breast cancer screening for a sample of Puerto Rican women and assessed the relationship between these constructs and literacy.
METHODS: A convenience sample of Hispanic women in waiting areas at three community clinics were invited to participate. Eligible women were 40 years of age or older, of Hispanic ethnicity, and had no prior history of breast cancer. The women were verbally administered a structured 60-item questionnaire and a shortened Test of Functional Health Literacy in Adults (sTOFHLA). Descriptive statistics are reported. The Fisher's Exact Test or Chi-Squared Test was used to compare categorical variables.
RESULTS: 126 women met inclusion criteria. Only data from the largest subgroup, consiting of Puerto Rican women (67%, n = 84), are included in the present study. Mean age was 58 (sd = 10.3) years, 37% had Medicaid, and 63% had less than an 8th grade education. Nearly all (93%) had a regular health care provider. One-third of the women had inadequate FHL, 20% had marginal FHL, and 47% had adequate FHL. 99% of the women had heard of a mammogram. However, only 29% knew screening should begin at age 40. Over two-thirds (69%) knew a mammogram should be performed yearly. FHL was not related to either knowledge of when mammography should start (p = 1.00) or the correct interval (p = .57). There was no association between multiple items asking about attitudes toward mammography screening (e.g., it is painful, embarrassing) and literacy, except that 79% of the inadequate and

marginally literate women considered mammography to be harmful compared to only 21% of the literate women (p = .02). Three-fourths (76%) reported that they performed self-breast examination but this was not related to FHL (p = .13). Finally, 95% of the women had ever had a previous mammogram, but only 64% had one in the previous one year. Neither ever having a mammogram (p = 1.00) nor having one in the past year (p = .76) were related to FHL.
CONCLUSION: Level of literacy in Puerto Rican women attending community clinics is not associated with knowledge, attitudes, or behaviors about breast cancer screening. For this particular sample, current methods of breast cancer screening promotion appear to be successful. Still, there is room for education about the appropriate age and frequency of self-breast examination and screening mammography. Of equal importance is studying groups of Hispanics outside of clinic settings to learn more about the relationships between literacy, breast cancer screening attitudes and behaviors, and access.

**LITERACY, KNOWLEDGE AND BEHAVIOR TOWARD COLORECTAL CANCER SCREENING IN PHILADELPHIA'S HISPANIC COMMUNITY.** C.E. Guerra[1], F. Dominguez[2], J.A. Shea[1]; [1]University of Pennsylvania Health System, Philadelphia, PA; [2]University of Pensylvania School of Medicine, Philadelphia, PA *(Tracking ID #52353)*

BACKGROUND: Hispanics are less likely to undergo colorectal cancer screening (CRCS) than members of other racial/ethnic groups. Barriers to CRCS have not been comprehensively studied in this population. Hispanics are also a high-risk group for inadequate functional health literacy (FHL) because of a high prevalence of acquiring English as a second language and lower educational status. This study examined the knowledge of and behavior toward colorectal cancer and CRCS in Philadelphia's Hispanic community and the relationships of knowledge and behaviors with FHL.
METHODS: A convenience sample of 150 patients waiting to see their physicians at 3 community clinics in Philadelphia were asked to participate in the study. Eligible patients had to be over 50 years of age, of Hispanic ethnicity and have no prior history of colon cancer. The patients were verbally administered a demographics questionnaire and a structured 46-item questionnaire that included an acculturation scale. FHL was assessed with the shortened Test of Functional Health Literacy in Adults (sTOFHLA).
RESULTS: 109 patients met the study criteria. 29 patients could not complete the entire survey. In the remaining 80 patients, the median age was 61 years, 89% were Puerto Rican, 33% had Medicaid, 51% had Medicare and 56% had less than an 8th grade education. The majority of patients (72%) had inadequate or marginal literacy scores. 38% of patients had not heard of colorectal cancer, 51% had not heard of FOBT and 34% had not heard of a sigmoidoscopy or a colonoscopy. Only lack of familiarity with FOBT was related to lower FHL levels (p = 0.04). 12% knew the recommended age to begin testing with FOBT and 5% knew when testing with sigmoidoscopy or colonoscopy should begin. In neither case was this knowledge related to FHL (p = 1.00). When asked how often a sigmoidoscopy should be performed, 8% answered correctly, with a trend for correct knowledge to be associated with higher FHL (p = 0.09). FHL was not associated with knowledge of the recommended frequency for FOBT (p = 0.76) nor was it associated with knowledge of the frequency of colonoscopy (p = 0.11). Only 36% had had a FOBT and 29% had had a sigmoidoscopy or colonoscopy. FHL was not related to having had a FOBT (p = 0.24), but was positively related to having had a sigmoidoscopy or colonoscopy (p = 0.0077). Of the patients who had not undergone a sigmoidoscopy or a colonoscopy, 20% had adequate FHL and 80% scored at inadequate or marginal levels compared to 53% and 47% for those who had had a screening test. For patients with inadequate or marginal FHL, the unadjusted odds ratio for not undergoing CRCS with a flexible sigmoidoscopy or a colonoscopy was 4.56 (95% CI 1.23 – 16.96).
CONCLUSION: Inadequate FHL is prevalent in Hispanics attending community clinics in Philadelphia. Inadequate FHL is associated with lower awareness of FOBT and with lower use of sigmoidoscopy or colonoscopy. Methods of educating this community about CRCS need to be developed that do not require high literacy skills.

**THE EFFECT OF MANAGED CARE INSURANCE ON THE USE OF PREVENTATIVE CARE FOR WOMEN OF SPECIFIC ETHNIC GROUPS IN THE UNITED STATES.** J.S. Haas[1], K.A. Phillips[1], D. Sonneborn[1], C.E. Mcculloch[1], S.Y. Liang[1]; [1]University of California, San Francisco, San Francisco, CA *(Tracking ID #50615)*

BACKGROUND: Managed care has drastically changed the way that medical care is provided in the US. Despite the broad implementation of managed care, there is little information that specifically addresses how this type of coverage may affect ethnic disparities in the use of health care. The objective of this study is to examine the effect of managed care insurance on the use of preventative care by women of different ethnic groups.
METHODS: Observational cohort using the 1996 Medical Expenditure Panel Survey. Women with health insurance who reported their ethnicity as white, African-American, Latina, or Asian/ Pacific Islander were included. The main outcome variables were: (1) Mammography within the past two years for women between the ages of 50 – 75 (n = 1,957), (2) Receipt of a clinical breast exam within the past two years for women between the ages of 40 – 75 (n = 3,232), and (3) Receipt of a Papanicolaou (PAP) smear within the last two years for women between the ages of 18 and 65 (n = 4,958).
RESULTS: After adjustment and weighting for the complex survey design, Latinas enrolled in a managed care plan reported higher rates of mammography, clinical breast exam, and PAP smear compared with Latinas with fee-for-service insurance. For example, the predicted probability of a mammogram for Latinas in a managed care plan was 85.6% compared to 72.4% for Latinas with a fee-for-service coverage (risk difference: 13.2%; 95% confidence interval for the risk difference 0.1% – 25.7%). Whites enrolled in a managed care plan were also more likely than whites enrolled with fee-for-service coverage to receive mammography. Managed care was not associated with less preventative care for any ethnic group.
CONCLUSION: In this nationally representative household survey, we found that managed care insurance is associated with greater use of some preventative care for Latinas and white women than fee-for-service insurance. Despite a focus on prevention, the benefits of managed care are not apparent for African-Americans or Asian/ Pacific Islanders. Further understanding of the characteristics of managed care plans that are associated with these improvements should be sought, since this may lead to interventions to reduce ethnic disparities in the use of preventative care.

**THE EFFECT OF COMMUNITY RACIAL COMPOSITION ON DIFFICULTY OBTAINING HEALTH CARE.** J.S. Haas[1], K.A. Phillips[1], D. Sonneborn[1], C.E. Mcculloch[1], S.Y. Liang[1]; [1]University of California, San Francisco, San Francisco, CA *(Tracking ID #51389)*

BACKGROUND: While most studies examining racial disparities in health care have focused on the characteristics of the individual, more recently there has been attention to the notion that an individual's health behaviors may be influenced by community characteristics. This study examines the extent to which difficulty obtaining health care varies with the racial composition of an individual's neighborhood and the individual's race.
METHODS: Nationally representative observational cohort using the 1996 Medical Expenditure Panel Survey. Adults who reported their ethnicity as white (W), African-American (AA), or Latino (L), and who could be linked to county-level data on racial composition. Our principal outcome variable was report of difficulty obtaining health care (n = 11,029).
RESULTS: After adjustment for a variety of individual and county-level variables, and weighting for the complex survey design, we found (refer to Table below):
CONCLUSION: Although there was no difference in outcomes for Latinos by the concentration of Latinos in the community, AAs and whites have more difficulty obtaining care when they live in communities with a greater percent of Latinos than those who live in communities with fewer Latinos. We found that AAs may face less difficulty obtaining care when they live in communities with more AAs, whereas Latinos and whites have more difficulty in these communities.

**Diffuculty Obtaining Care by Community Racial Composition**

| | Low L | Med. L | High L | Low AA | Med. AA | High AA |
|---|---|---|---|---|---|---|
| L | 14.9% | 13.6% | 12.1% | 10.2% | 12.6% | 18.8%* |
| AA | 9.2% | 9.5% | 17.8%* | 15.5% | 11.7% | 8.6%** |
| White | 9.4% | 10.0% | 16.6%* | 10.0% | 12.4% | 13.7%** |

* p < 0.05 comparing high vs. low
** p ≤ 0.10 comparing high vs. low

**ACCURACY OF PERCEPTION OF BREAST CANCER SURVIVAL AND SCREENING BENEFIT AMONG VULNERABLE POPULATIONS.** D. Haggstrom[1], M.M. Schapira[1]; [1]Medical College of Wisconsin, Milwaukee, WI *(Tracking ID #46439)*

BACKGROUND: The perception of breast cancer risk among women from vulnerable populations has not been well-studied. We hypothesized that more vulnerable populations would be less accurate in their perceptions of breast cancer survival and the efficacy of screening because of less knowledge and access to accurate information.
METHODS: We studied a random sample of women 40 years of age or older drawn from two academic primary care practices. We measured the accuracy of women's responses to questions about (1) 5-year breast cancer survival (race-specific correct answer) and (2) the benefit of screening mammography (age-specific correct answer). We divided responses to both of these questions into four categories: 0 – 25%, 26 – 50%, 51 – 75%, and 76 – 100%. When the women's responses were inaccurate, we then noted whether they under- or overestimated their chances of survival and screening benefit; we defined an underestimate as "pessimistic" and an overestimate as "optimistic". The effect of age, race, income, insurance type, education, and numeracy on the accuracy of women's perceptions was analyzed. Univariate and multivariate analyses were performed to determine how these demographic factors influenced the women's perception of risk.
RESULTS: Overall, a minority of women we surveyed (33%) accurately estimated their chances of 5-year survival after being diagnosed with breast cancer. In multivariate analysis, African-American women (p < .001) and women who reported a higher income (p = .005) were more likely to accurately estimate their chances of breast cancer survival. African-American women were more likely to be pessimistic than optimistic in their responses (34.7% underestimated while 16.0% overestimated their 5-year survival). Overall, a minority of women (16%) accurately estimated the benefit of screening mammography. In univariate analysis, women who were African-American (p = .0162), reported less income ( p = .0008), reported fewer years of education (p < .0001), and demonstrated less numeracy (p = .0030) were more likely to accurately estimate the benefit of screening. African-American women were less likely than white women to be optimistic (78.2% vs. 94.2% overestimated the benefit of screening).
CONCLUSION: The majority of women we surveyed were inaccurate in their perception of breast cancer risk. Yet contrary to our expectations, more vulnerable populations — including African-Americans — perceived breast cancer survival and screening benefit more accurately in many cases. African-American women also tended to be more pessimistic in their expectations of survival and screening benefit. This work suggests that not only knowledge, but attitudes towards health care, may result in more accurate perceptions of risk. These findings may be helpful in designing appropriate, effective interventions to influence health behavior and screening decisions among vulnerable populations.

**THE FEASIBILITY OF PARTNERING WITH AFRICAN AMERICAN BARBERSHOPS TO PROVIDE PROSTATE CANCER EDUCATION.** A. Hart[1], D. Bowen[2]; [1]Fred Hutchinson Cancer Research Center/Unviveristy of Washington-Harborview Medical Center, Seattle, WA; [2]Fred Hutchinson Cancer Research Center/Unviveristy of Washington, Seattle, WA *(Tracking ID #50536)*

BACKGROUND: The disproportionately high burden of prostate cancer in African American men may be due to lower screening rates. One proposed method to increase prostate cancer

screening is the use of educational decisions aids; however, most studies involving decision aids have been conducted in health care settings. African American men are less likely to have access to, or utilize health care. Therefore, more community-based intervention sites are needed. The purpose of this study was to determine the feasibility of partnering with barbershops to implement a community-based prostate cancer educational decision aid for African American men.
METHODS: We used African American newspapers to compile a list of barbershops and salons that serve African American men in Seattle, Washington. Trained research interviewers conducted proprietor surveys and client surveys. Each barbershop or salon proprietor who agreed to participate was administered a face-to-face structured proprietor survey that included questions regarding his or her willingness to provide information about prostate cancer in his or her place of business. To conduct the client surveys, we selected two barbershops whose proprietors were most enthusiastic about the project and whose clientele included a large proportion of African American men in the 40 – 70 age-group. A self-administered survey was given to each male client who agreed to participate. The survey included items pertaining to the client's willingness to view information about prostate cancer in a barbershop.
RESULTS: We collected surveys from 24 barbershop and salon proprietors out of a total of 41 approached (59% response rate). Ninety-six percent of the proprietors surveyed reported they would allow their clients to learn about prostate cancer in their place of business. We collected surveys from 88 clients out of a total 89 approached (99% response rate). Sixty-seven percent of those who completed a client survey met our eligibility criteria (e.g. age 40 – 70, African American, no history of prostate cancer). Ninety-seven percent reported that they would be willing to view information about prostate cancer in barbershops.
CONCLUSION: Based on the findings from this pilot study, barbershop and salon proprietors in Seattle-King County that serve African American males appear willing to participate in prostate cancer education, and clients were interested in obtaining information on prostate cancer in barbershops. Therefore, our results suggest that barbershops and salons may be feasible sites for a community-based prostate cancer screening decision aid intervention for African American men.

**ACCOUNTING FOR RACIAL DISPARITY IN LIFE EXPECTANCY.** L. Hasbrouck[1], J. Mercy[1], L. Potter[2], M. Andre[1]; [1]Centers for Disease Control, Atlanta, GA; [2]Children's Safety Network, Boston, MA *(Tracking ID #50447)*

BACKGROUND: Life expectancy (LE) in the US has historically been lower for blacks than whites. To quantify the contribution of various causes of death, we examined the associations between cause of death, LE, and race.
METHODS: NCHS mortality files for 1998 and multiple-decrement life table techniqes to decompose LE differentials by cause of death were used to examine racial differences in LE.
RESULTS: In 1998, whites lived 6.2 years longer than blacks. Overall, heart disease (1.7 years; 27.4%) was the leading contributor to the difference, followed by cancer (1.2 years; 19.4%), homicide (0.6 years; 9.7%), stroke (0.5 years; 8.1%). The LE differential was 6.4 years for males and 4.4 years for females. Among males, the leading causes of death that contributed to the LE differential were heart disease (1.2 years; 19.0%), cancer (1.0 years; 15.6%), and homicide (0.9 years; 14.1%), and among females were heart disease (1.2 years; 27.3%), cancer (0.5 years; 11.4%), and perinatal disease (0.4 years; 9.1%). Stroke and human immunodeficiency virus (HIV) accounted for 0.3 years (6.8%) and 0.3 years (6.8%), respectively, of the LE differential among females and 0.4 years (6.3%) and 0.6 years (9.4%), respectively, among males.
CONCLUSION: More than one-half of the LE difference between whites and blacks was attributable to three conditions: heart disease, cancer, and homicide. Efforts to reduce longstanding racial disparities in health by 2010 must focus on these key areas.

**DO PATIENTS' SELF-REPORTED DIABETES MANAGEMENT AND SOCIO-DEMOGRAPHIC CHARACTERISTICS MATTER FOR RECEIPT OF DIABETES SERVICES AND DISEASE CONTROL?** M. Heisler[1], D.M. Smith[1], S.L. Krein[1], E.A. Kerr[1]; [1]Ann Arbor Veterans' Affairs Medical Center, University of Michigan, Ann Arbor, MI *(Tracking ID #51885)*

BACKGROUND: Patient characteristics influence whether patients with diabetes receive necessary diabetes services and achieve better disease control. Randomized controlled trials of interventions to increase patient self-management of diabetes have improved glycemic control. There is less evidence on whether patients' assessment of their self-management in standard practice predicts better glycemic control. Further, patient characteristics such as race and income have been associated with worse processes of care and outcomes in other areas of medical care. We examined: 1) how patients'evaluation of their diabetes self-management was associated with receipt of diabetes services and disease control measures; and 2) whether patients' income, education, and race were associated with these measures.
METHODS: We abstracted information on intermediate outcomes (achieved level of blood pressure, glucose control (A1c), and cholesterol control (LDL), and diabetes processes of care (receipt of A1c, LDL, eye exam, and foot exam) from medical records of 800 diabetic veterans who received care from 18 facilities and who had answered the Diabetes Quality Improvement Program (DQIP) survey in 2000. The survey included socio-demographic measures and a 5-item scale of patients' self-management (medications use, blood glucose monitoring, diet, exercise, and foot care (alpha = .68)). Using multivariable linear and logistic regression, we examined the associations of patients' reported diabetes self-management, race, education and income with each of the process and intermediate outcome measures. We adjusted for diabetes severity and co-morbidities, medications, age, use of VA services, and clustering at the facility level.
RESULTS: For the process measures, patients' reported self-management was associated only with receiving an eye examination (OR = 1.02, CI = 1.01 – 1.03. For the outcomes, patients' assessment of their diabetes self-management was associated with lower A1c levels ($p < 0.01$), but not with levels of LDL or blood pressure control. Those in the highest percentile for self-management had a mean A1c level of 7.3 (95% CI: 6.4 – 8.3), whereas those in the lowest percentile had mean levels of 8.6 (95% CI: 7.6 – 9.6). Being of minority race was associated with NOT receiving an A1c (OR = 0.58,CI = .34 – .98), LDL (OR = .51, CI = .32 – .81), and an eye exam (OR = .53, CI = .36 – .79).
CONCLUSION: In this sample, patients' assessment of their diabetes self-care was strongly associated with actual A1c control. This finding suggests that patient evaluations of their own self-management may be useful in understanding and improving glycemic control. Minority race was associated with being less likely to receive diabetes services, but — for those who had received those services — was not associated with differences in intermediate outcomes.

**RACIAL AND ETHNIC DISPARITIES IN SATISFACTION WITH HOSPITAL CARE.** L.S. Hicks[1], J.Z. Ayanian[1], E.J. Orav[2], J. Soukup[2], P.A. Johnson[3]; [1]Division of General Internal Medicine, Brigham and Women's Hospital and Department of Health Care Policy, Harvard Medical School, Boston, MA; [2]Division of General Internal Medicine, Brigham and Women's Hospital, Boston, MA; [3]Center for Cardiovascular Disease in Women and Divison of General Internal Medicine, Brigham and Women's Hospital, Boston, MA *(Tracking ID #51521)*

BACKGROUND: Racial differences in satisfaction and perception of quality care have been noted in primary care, but have not been well studied among hospital inpatients.
METHODS: To determine whether race was associated with patient satisfaction, we studied adult patients (3,628 White, 357 Black, and 244 Latino) surveyed after a recent hospitalization on the medical, surgical, or obstetrical services at a large urban teaching hospital during 1998 – 2000. The Picker Patient Satisfaction survey was used and problem scores were calculated for each dimension of patient satisfaction including: respect for patient preferences, coordination of care, information and education, physical comfort, emotional support, involvement of family/friends, and continuity and transition of care. We tested the association of patient race with reports of more problems (highest 20% of problem scores) in measures of patient satisfaction. We determined the odds ratio (OR) of reporting problems in each measure, by race and ethnicity, adjusting for gender, age, comorbid disease, insurance status, income, primary language, route of hospital admission, and hospital service using logistic regression.
RESULTS: In unadjusted analyses, Blacks and Latinos reported more problems with respect for their preferences (27.5% of Blacks, 27.1% of Latinos vs. 17.5% of Whites, P = 0.001), with information and education (25.8% of Blacks, 24.2% of Latinos vs. 18.9% of Whites, P = 0.002), with physical comfort (13.5% of Blacks, 16.4% of Latinos vs. 11.1% of Whites, P = 0.03) and with emotional support (29.1% of Blacks, 26.6% of Latinos vs. 21.3% of Whites, P = 0.001). After adjustment, Blacks and Latinos reported more problems with respect for their preferences (OR = 1.58, 95% C.I.: 1.13 – 2.11 for Blacks; OR = 1.83, 95% C.I.: 1.24 – 2.71 for Latinos) compared to Whites. There were no significant differences in other adjusted measures of patient satisfaction.
CONCLUSION: In this large sample of medical, surgical and obstetrical patients we found significant racial differences in levels of satisfaction with inpatient care, particularly regarding respect for patient's preferences. Such differences may contribute to previously reported racial and ethnic differences in use of procedures. Hospital staff should better understand and address the preferences of Black and Latino patients.

**RACIAL DIFFERENCES IN INITIAL TREATMENT FOR CLINICALLY LOCALIZED PROSTATE CANCER.** R.M. Hoffman[1], L.C. Harlan[2], C. Klabunde[2], W.C. Hunt[3]; [1]VA Medical Center, Albuquerque, NM; [2]National Cancer Institute, Rockville, MD; [3]New Mexico Tumor Registry, Albuquerque, NM *(Tracking ID #50644)*

BACKGROUND: We determined whether there were racial differences in initial treatment for a population-based cohort of men with clinically localized prostate cancer (CaP) and determined factors associated with these differences.
METHODS: Subjects were 368 African-American (AA) and 806 non-Hispanic white (NHW) men from Atlanta, Los Angeles, and Connecticut diagnosed with clinically localized prostate cancer in 1994 – 95 and enrolled in the population-based Prostate Cancer Outcomes Study. Subjects completed a survey collecting demographic, socioeconomic (SES), and clinical data. We obtained data on tumor characteristics, diagnostic work-up for metastases, and initial treatment (radical prostatectomy [RP], radiation therapy [XRT], or conservative management [CM] — either no treatment or androgen deprivation) from medical record review. We analyzed data using contingency tables and multinomial logistic regression models weighted by the sampling fraction. Results of the regression analyses are presented as the predicted marginal percentages of patients receiving each treatment.
RESULTS: AA were significantly younger than NHW, less likely to be married, and had poorer SES, more comorbidity, and a greater proportion of aggressive tumors — PSA >20 or Gleason >7 (25% vs. 15%, $P < 0.01$). AA and NHW men were equally likely to undergo RP (54.3% vs. 55.6%), however, AA were more likely to receive CM (25.7% vs. 15.8%) and less likely to receive XRT (20.0% vs. 28.6%), $P < 0.01$. We found a significant interaction between race and tumor aggressiveness. Among only men with aggressive tumors, AA less often received RP (35.2% vs. 52.0%) and more often received CM (38.9% vs. 16.3%, $P < 0.01$). Among men with no comorbidity, AA were more often treated with CM (46.3% vs. 8.2%, $P < 0.01$). A similar proportion of AA and NHW with aggressive tumors and CM received androgen deprivation.
CONCLUSION: Racial differences in initial treatment were evident only for men with aggressive cancers, where the healthiest AA were more often treated conservatively. This finding may reflect personal decisions about the risks and benefits of RP and XRT. SES factors could not explain treatment differences and there was no evidence that AA with aggressive tumors were being empirically treated for advanced stage cancer.

**DISPARITIES IN ACCESS TO HEALTHY FOODS FOR PEOPLE WITH DIABETES.** C.R. Horowitz[1], K.A. Colson[1], P.L. Hebert[1]; [1]Mount Sinai School of Medicine, New York, NY *(Tracking ID #51198)*

BACKGROUND: People of color have increased risk of diabetes and its complications. As part of an effort to improve diabetes care in East Harlem (EH), a predominantly African

American and Hispanic neighborhood in NY City, a community coalition compared the availability of foods appropriate for people with diabetes in EH and the Upper East Side (UES). UES is a largely White and relatively affluent adjacent neighborhood.
METHODS: From April to June, 2001, pairs of nutrionists and local outreach workers attempted to document the presence of diabetes-healthy items: low-fat milk, diet soda, high fiber and/or low carbohydrate bread, fresh fruit and green vegetables in all EH and UES grocery stores. Stores were defined as either large markets, or small "bodegas," based on the number of cash registers.
RESULTS: We surveyed 98% of all grocery stores: 173 in EH and 152 in UES. Overall, 18% of stores in EH had at least one of each item on their shelves versus 58% in UES ($p < 0.001$ ). Bodegas in EH were substantially less likely to carry all items (9% EH vs. 56% UES; $p = 0.001$ ) and accounted for a higher fraction of the stores in EH than in UES (81% vs. 64%, $p = 0.021$ ). Large markets in EH appeared less likely to carry all items (56% EH vs. 77% UES; $p = 0.06$).
CONCLUSION: People in EH may have limited access to grocery stores in their neighborhood that carry the diabetes-healthy items included in this survey. These findings could inform nutrition interventions for EH, ranging from educating patients about sources of healthy foods, to increasing food distributor and store owner responsiveness to dietary needs of East Harlem residents.

### INNER CITY AFRICAN AMERICAN ELDERLY PATIENTS' PERECEPTIONS & EXPECTATIONS OF CARE FOR CHRONIC KNEE/HIP ARTHRITIS: PRELIMINARY FINDINGS FROM FOCUS GROUPS.

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BACKGROUND: There is marked racial/ethnic variation in the utilization of joint replacement therapy. Since culrurally-based patient perceptions and expectations of care may impact utilization, we used focus group methodology to examine African American (AA) patients' perceptions and expectations of care for their knee/hip arthritis.
METHODS: Ten focus groups of older, inner city, community-dwelling AA men and women with chronic knee/hip arthritis were conducted to discuss perceptions and expectation of care. Session transcripts were coded for thematic structure using NUD*IST software. Preliminary data from the first (all women) 7 focus groups ($N = 54$) are presented here.
RESULTS: Participants' mean age was 62; mean years of education was 13.8; 83% Protestant, 3% Catholic, 8% other Christian denominations, and 6% from other religions. Duration of knee/hip arthritis ranged from 5 – 20 years.
Cultural aspects of care emerged as a major theme. Within this theme, four nodes predominated: 1) faith; 2) cultural competency; 3) physician's race/ethnicity; and 4) physician's gender. Within each node, major findings in order of frequency and intensity were: 1) Faith — Participants draw inner strength from faith to endure or battle arthritis pain. They believe that God heals and that faith in God (e.g., prayer) helps the healing process. Participants also believe that God guides doctors and their practice. They reported that faith affects treatment seeking, treatment decision-making, interaction with physicians, and compliance with recommended treatment. 2) Cultural Competency — Participants do not expect physicians to share their faith. They consider care culturally competent if physicians understand and respect their beliefs and show compassion and caring that cross over cultural barriers. Patients feel empowered by religious components of care such as prayer with doctors, religious blessing, or encouragement by doctors. 3) Physician's Race/Ethnicity — Physician's race/ethnicity does not matter; quality of care is more important. Some participants prefer an AA doctor if s/he is as good as "others." They feel "closer" to AA doctors or believe that AA doctors have better understanding of their conditions. 4) Physician's Gender — Most particpants feel more comfortable with female doctors. Some prefer a male doctor because doctors are "traditionally male."
CONCLUSION: This sample of older inner city African American women expressed unique cultural perceptions and expectations of care for their knee/hip arthritis. Respect for patients' faith is important, while physicians' race/ethnicity or religious background is less important.

### PATIENT PERCEPTIONS OF QUALITY OF CHRONIC KNEE/HIP PAIN: DIFFERENCES BY ETHNICITY AND RELATIONSHIP TO CLINICAL VARIABLES.

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BACKGROUND: There is a marked racial/ethnic variation in the utilization of joint replacement for osteoarthritis. The reasons are unknown. Persistent pain is an indication for referral for joint replacement. Cultural and psychosocial factors may influence how arthritis patients communicate their pain experiences. We examined whether African American (AA) and white patients differ in their descriptions of the quality of knee/hip pain; and whether these differences are associated with established clinical measures.
METHODS: 149 white and 123 AA male veterans, 50 years of age or older with moderate to severe osteoarthritis (OA), based on the Lequense scale, were asked to describe the quality of their knee/hip pain using the following descriptors: sharp, stabbing, sore, tender, dull, stiff, throbbing, frozen, hot, or aching. Response options were never, sometimes, or always. Disease severity (WOMAC), pain (using a visual analog scale-VAS) global quality of life (QOL), and x-rays (Kellgren-Lawrence scores) were also assessed.
RESULTS: Whites and AAs were comparable on sociodemographic, VAS pain, and WOMAC index scores. Exploratory factor analysis identified four factors: a) sharp/stabbing; b) sore/tender; c) dull/stiff/achy; and d) hot/frozen/throbbing. Confirmatory factor analysis showed that the model fit well for whites (Non-Norm Fitness Index (NNFI) = 0.93), but this model did not converge for AAs. A three-factor model best fit the data for AAs: a) sharp/stabbing; b) hot/frozen; and c) dull/stiff/achy/sore/tender/throbbing (NNFI = 1.05).
QOL did not correlate with any pain quality factor for AAs. Factor a (sharp/stabbing)negatively correlated with QOL for whites, $r = -0.25$, $P = 0.002$. Also, factor d (hot/frozen/throbbing) negatively correlated with QOL for whites, $r = -0.19$, $P = 0.02$. For AAs, one factor (sharp/stabbing) correlated weakly with VAS pain ($r = 0.28$, $P = 0.001$). All pain factors except factor d (hot/frozen/throbbing) correlated weakly with the VAS for whites (ranging from: $r = 0.20$, $P = 0.02$, to $r = 0 .30$, $P = 0.001$). For both groups, all pain factors correlated modestly with the WOMAC (ranging from: $r = 0.31$, $P = 0.001$, to $r = 0.43$, $P = 0.001$ for whites; $r = 0.19$, $P = 0.03$ to $r = 0.38$, $P = 0.001$ for AA). X-ray scores were not correlated with any pain factors in either group.
CONCLUSION: Descriptions of chronic knee/hip pain vary by ethnicity and correlate differently with important clinical measures. Cultural and racial/ethnic variations in how patients communicate knee/hip pain to physicians may influence the referral and selection processes for joint replacement therapy.

### ASKING ABOUT RACE AND ETHNICITY IN THE HEALTH CARE SETTING: MINORITY PATIENTS' PERSPECTIVES.

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BACKGROUND: The debate over whether and how race and ethnicity variables should be used in research continues to grow. While the academic arguments for and against asking about race and ethnicity have been clearly delineated, very little is known about what patients think about these variables and how they feel when asked to identify their race and/or ethnicity. The purpose of this study was to explore the meaning of race and ethnicity to the patient population we serve and their attitudes towards questions about their race and/or ethnicity.
METHODS: Six focus groups (FG) were conducted with a convenient sample of predominantly female patients who received care at one of three Cook County affiliated clinics. Four FGs focussed on African American patients (20 – 76 years; $n = 23$) and were moderated by an African American FG leader. Two focussed on Spanish-speaking patients (years; $n = 11$) and were moderated by a bilingual, bicultural FG leader. The interview guide contained questions addressing (1) the meaning of the terms race and ethnicity, (2) self and external identification, (3) the appropriateness of asking about race and ethnicity in the health care setting and (4) how well they thought the census captured data on race and ethnicity. Discussions were audio taped, transcribed and coded by themes for interpretation using grounded theory.
RESULTS: Common themes included: (1) Categorization of race leads to discrimination. (2) Questions about race and ethnicity in the health care setting may or may not be appropriate. Participants thought it was appropriate if they believed the information was used to target care and inappropriate if they believed it was used as a means of discrimination. (3) Their willingness to answer these questions depended on how and why they were asked. (4) The 2000 Census race and ethnicity questions were confusing and difficult to answer. Themes specific to African Americans included confusion regarding the difference between the terms race and ethnicity and the lability of the terms used to identify them over time. They specifically discussed how racial and ethnic labels had changed over time and identification preferences differed between generations. Spanish-speaking patients made a clearer distinction between race and ethnicity, viewing race as "pedigree" and ethnicity a representation of one's national/cultural origin. They considered questions about race rude and preferred questions about ethnicity.
CONCLUSION: While academics and health care providers think they are doing the best for patients by asking them to identify their race and/or ethnicity their minority patients may view their motives very differently. Culturally sensitive methods and tools should be developed to collect this information in a valid and non-threatening manner.

### PSYCHOLOGICAL MORBIDITY AND PERCEIVED ACCESS TO HEALTH CARE AMONG DETAINED ASYLUM SEEKERS.

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BACKGROUND: In the United States, many asylum-seekers are held in Immigration and Naturalization Services (INS) detention centres pending court decisions. There are many concerns about the psychological and physical well-being of detained asylum-seekers and their access to health care. However, there have been no formal studies to evaluate these issues.
METHODS: We interviewed detained asylum-seekers in INS detention facilities in the New York City area. Anxiety and depression were measured with the Hopkins Symptom Checklist-25 (HCS-25); PTSD was measured with the Harvard Trauma Questionnaire (HTQ). Demographic and social characteristics, access to and utilization of health care services, were collected via a standardized self-report questionnaire.
RESULTS: Results: Among 53 detained asylum-seekers, 83% had symptoms consistent with depression (HSC-25 score > 1.75), 74% had symptoms consistent with anxiety (HSC-25 score > 1.75), and 51% had symptoms consistent with PTSD (HTQ score > or = 2.5.) 37% (16/43) of detainees reported substantial difficulty accessing health care while in detention. Among detainees who requested health care ($n = 43$), those who reported more difficulty accessing health care also reported significantly greater symptoms consistent with PTSD, anxiety and depression (see table).
CONCLUSION: Our study suggests that high levels of psychological morbidity exist among detained asylum seekers, and that a significant proportion of detainees report substantial difficulty accessing health care in this setting. Moreover, detainees who encounter substantial difficulty accessing health care are more likely to have greater psychological morbidity.

| | Detainees Reporting Little or No Difficulty Accessing Health Care (n = 27) | Detainees Reporting Significant Difficulty Accessing Health Care (n = 16) | p-Values (Mann-Whitney Test) |
|---|---|---|---|
| Anxiety (HSC-25) | 2.07 (0.84) | 2.72 (0.64) | p = 0.009 |
| Depression (HSC-25) | 2.20 (0.71) | 2.79 (0.57) | p = 0.019 |
| PTSD (HTQ) | 2.35 (0.65) | 2.89 (0.66) | p = 0.015 |

**NO DOOR TO LOCK: SEXUAL VICTIMIZATION IN HOMELESS AND MARGINALLY HOUSED PERSONS.** M. Kushel[1], J. Evans[1], S. Perry[1], A.R. Moss[1]; [1]University of California, San Francisco, San Francisco, CA *(Tracking ID #51418)*

BACKGROUND: Homeless persons report high rates of physical and sexual victimization; these are associated with poorer health outcomes and increased health care utilization. Prior research has suggested that mental illness and alcohol use were associated with victimization; we conducted this study to explore whether housing situation, sexual orientation or involvement in sex work (exchanging sex for drugs or money) were associated with sexual victimization among homeless and marginally housed (h/mh) women and men in San Francisco.
METHODS: We administered a questionnaire to a probability sample of homeless and marginally housed persons in 1996 – 1997. We considered persons who reported spending over 90% of their nights in the past year living in a hotel to be marginally housed. Sexual victimization was defined as reporting at least 1 incident of sexual assault in past year. In multivariate analyses, stratified by gender, we explored whether housing (homeless vs. marginally housed), mental illness, drug and alcohol use, sexual orientation, partner status and sex work were associated with sexual victimization.
RESULTS: We interviewed 2578 subjects (67% of those approached). 78% of respondents were men. A quarter (23%) were marginally housed. Women were more likely to report sexual victimization (9.6% vs. 1.6%). For women, mental illness (OR 2.1, CI 1.1 – 4.0); reporting >6 sexual partners in past year (OR 3.7, CI 1.7 – 7.5) and homeless >1 year (OR 2.0, CI 1.1 – 3.8) were associated with increased odds of sexual victimization, while being marginally housed was associated with significantly lower odds (OR 0.2 (CI 0.06 – 0.7). Sex work was not independently associated with victimization among women, although it was among men (OR 2.6, CI 1.1 – 5.8). Men who had sex with men (MSM) (OR 4.1, CI 1.9 – 9.5), who currently lived with a partner (OR 2.7, CI 1.1 – 6.3), or who were homeless >1 year (OR 4.1, CI 1.9 – 9.5) had higher odds of sexual victimization. Sex work was reported frequently: 16% of women and 9% of men reported sex work in the prior year. Neither alcohol nor drug use was independently associated in either men or women.
CONCLUSION: We found that 10% of h/mh women report sexual victimization in the prior year, compared with lifetime estimates up to 25% among American women. For both men and women, long-term homelessness should be regarded as a risk factor for victimization. Women with multiple sexual partners, whether or not they report sex work, and male sex workers or MSM should be considered at high risk and screened appropriately. Among women, residing in a residential hotel is protective. This provides a policy option to decrease sexual victimization among homeless women.

**WEIGHING PERCEPTIONS: HOW WELL DO PATIENTS RECOGNIZE OBESITY?** J. Lee[1]; [1]New York Medical College, New York, NY *(Tracking ID #52156)*

BACKGROUND: Obesity, a known cause of increased mortality, has reached epidemic proportions in the United States. Those who fail to recognize that they are overweight may lose the opportunity to seek and receive medical counsel from their primary care doctors. This study was prompted by a desire to understand our patient's judgments about their own weight, and the extent to which they understand that weight is a serious health risk.
METHODS: This is a cross-sectional study that compares patients' subjective assessment of their body size using a visual analog scale to their actual BMI. Patients were also asked to quantify the impact of their weight upon their health. Information was collected from two different practice settings, one with privately insured patients, the other with an indigent population.
RESULTS: Of the 284 total patients introduced into the study, 148 were overweight or obese. These 148 patients misclassified their weight by an average of 2.34 BMI points, and a full 30 percent underestimated their BMI by greater than 5 points. There was a pronounced difference between the two patient populations: the average underestimation of BMI among the 88 overweight private practice patients was 1.19, and that of the 60 clinic patients was 3.66 (p < .005). While 23 percent of the private practice patients underestimated their BMI by greater than 5 BMI points, 40 percent of the clinic patients underestimated their BMI by more than 5 points.
CONCLUSION: For patients, the meaning of "overweight" differs from that of the current health definition. If efforts to reduce the problem of excess weight are to be successful, health care professionals must redouble efforts to educate patients about known medical recommendations about healthy weight; more attention may be required in particular among the underserved patient population.

**NEIGHBORHOOD, RACE, AND HEALTH IN SOUTHWESTERN PENNSYLVANIA.** J.A. Long[1]; [1]Philadelphia VA Medical Center, Philadelphia, PA *(Tracking ID #51501)*

BACKGROUND: Growing evidence indicates that neighborhood social environment has an independent effect on health. This may in part explain why individuals from low socio-economic (SES) groups have worse health than individuals from high SES groups. Little work however, has been done to evaluate if neighborhood characterisitcs have differential effects by race. This study, therefor, is a preliminary exploration into the relationships among neighborhood, race, and health.
METHODS: The data for these anlyses come from two existing data sources. The individual level data comes from the Philadelphia Health Management Corporation 1998 – 99 Southwestern Pennsylvania Household Survey. The survey is a cross-sectional telephone interview stratified to be representative of Bucks, Chester, Deleware, Montgomery, and Philadelphia Counties. 1990 census ZIP code mean family income was used as the measure of neighborhood social environment. Individual income and ZIP code income were stratified by quartiles for each race separately. The outcome of interest was rating one's health as poor or fair compared to good or excellent. The study sample includes 2,187 African Americans and 6,366 Whites over the age of 18.
RESULTS: For both African Americans and Whites there was a gradient in self-rated health across ZIP code income (both chi-sqaure trend p < 0.0001). In addition, individuals with high incomes living in the highest income ZIP codes for their race were least likely to rate their health poorly (13% for African Americans and 3% for Whites) while individuals with low incomes living in the lowest income ZIP codes were most likley to do so (41% for African Americans and 26% for Whites). After adjusting for clustering by ZIP code, as well as, neighborhood segregation, individual income, age, sex, being a smoker, being overweight, weekly exercise, having a chronic health condition, having depressive symptoms, having health insurance, having a regular source of care, and having been hospitalized in the year, ZIP code income remained associated with self-rated health for both African Americans and Whites. For African Americans and Whites living in the poorest ZIP codes the odds of rating ones health as poor or fair were respectively 1.72 (95% CI, 1.17 – 2.53) and 1.45 (95% CI, 1.09 – 1.97), compared to those living in the highest income ZIP codes for their race.
CONCLUSION: After controlling for individual income, as well as other individual co-variates, ZIP code income remained associated with self-rated health for both African Americans and Whites in this cohort representative of Southwestern Pennsylvania. These results support the growing work that indicates that our relative social environment has an important influence on our health.

**DO LANGUAGE BARRIERS IMPACT ON THE TIMING OF DISCUSSIONS REGARDING LIFE-SUSTAINING TREATMENT IN AN INTENSIVE CARE UNIT?** J.P. Lopez[1], J.A. Diaz[1], M.K. Mraz[1], M. Levy[2], J.M. Teno[3]; [1]Rhode Island Hospital, Providence, RI; [2]Brown University/Rhode Island Hospital, Providence, RI; [3]Brown University, Barrington, RI *(Tracking ID #52091)*

BACKGROUND: Little research has examined the timing of end of life discussions among persons and families with limited English proficiency (LEP).
METHODS: A retrospective chart review of all hospital deaths in the ICU during 2000 at one inner city academic hospital was conducted. Data was collected on the patients' ability to verbally communicate at the time of admission (e.g. comatose, mechanically ventilated, etc.) and whether a language barrier existed for either the patient or the family. Additional information was collected on the following: age, gender, diagnoses, severity of illness as derived by the Mortality Probability Model II upon ICU admission, date of the first completed Order of Resuscitative Measures (ORM) sheet, and date of the first discussion from ICU admission regarding life sustaining treatment, as documented in the doctors' progress notes. We compared the number of days to the first discussion among persons able to communicate and speak English, those able to communicate and unable to speak English, and persons unable to communicate using the Kaplan-Meier test and a Cox proportional hazard model that adjusted for age and disease severity.
RESULTS: Over one year, 250 persons died (average age 68.5 years, 50.4% male, 6.4% African American, 6.4% Hispanic). 242 persons had at least 1 documented discussion, 118 of whom also had a completed ORM. However, only 76 of the ORMs correlated with the first documented discussion. At the time of admission, 146 (58.4%) of the patients were able to communicate and spoke English, and 26 (10.4%) were able to communicate but had LEP. The remaining 65 (26%) patients could not communicate, 62 (25.2%) of whom had family members who spoke English. English proficiency data was not available for 12 persons. The data suggests that patients with LEP who were able to communicate had a trend towards later discussions (i.e., median time to discussion 2.0 days for LEP persons able to communicate compared to 1.0 days for English speaking persons able to communicate (p = 0.13). This trend persisted after adjusting for age and severity of illness (Hazard ratio of 1.3; 95% CI: 0.77 – 2.2), but this effect failed to reach statistical significance.
CONCLUSION: Analysis of timing of discussions based on this small sample size suggests a trend towards later timing of discussions among persons with LEP. Further research is needed with prospective data collection, larger sample size, and multiple institutions.

**IMPROVING DIABETES SELF-CARE AMONG RURAL UNDERSERVED PATIENTS USING WEB TV.** N.B. May[1], M. Kinzie[1], J.B. Schorling[1]; [1]University of Virginia, Charlottesville, VA *(Tracking ID #51503)*

BACKGROUND: Diabetes effects many patients, particularly the poor and underserved. The internet is a resource that may improve patient care, yet is often not available to those most in need. WebTV can provide access to the internet for a wider range of patients at lower cost using more familiar technology than traditional computer-based access. We have developed a diabetes self-care program delivered using Web TV.
METHODS: The WebTV program was developed for patients with diabetes from an internal medicine teaching practice who are poor and have low literacy skills; many also live in rural areas and face transportation difficulties. We first conducted a patient survey to determine the availability of televisions, telephones, and computers as well as general interest in a Web TV-accessible self-care program. To identify self-care challenges, we conducted a series of open-ended interviews with patients and focus groups. The site was then developed through a series of prototypes. The prototypes were used and evaluated in patient focus groups and by a panel of web developers.
RESULTS: Of 158 patients surveyed, 99% had televisions in their homes, 96% had telephones, and only 27% had computers. Patient interest in accessing health information from the internet using their televisions was high (79%), while a minority was interested in learning to use a computer. Focus groups revealed that self-care challenges included: remembering to take medications, testing blood glucose, adhering to diet and exercise recommendations, general discouragement, and overall lack of knowledge about diabetes. The WebTV program developed in response includes individualized patient goals for blood glucose, diet, and physical activity that are established with a diabetes educator. The web site uses these goals, together with prescribed medications, to guide patient's self-monitoring activity and health-related behavior. The patient can monitor progress toward these goals, and also develop pattern recognition skills by examining graphs relating blood glucose levels to medication use, diet and exercise. All patients have been able to successfully use the program with a minimal amount of training. The biggest challenges have been technical. Web sites viewed via Web TV are very limited compared with traditional Internet-based programs. We also needed to design an interface that could be easily used by patients unfamiliar with computers and the Internet,

and had to develop software that can be ported forward when new technology platforms emerge.
CONCLUSION: Despite the technical limitations of Web TV, self-care programs accessible through the familiar technology of the television may be feasible for underserved populations. Health information and support via television could help reduce the health disparities between low and high income populations for patients with diabetes and other chronic illnesses. Challenges include developing programs appropriate for less sophisticated users and in maintaining flexibility in the technical aspects of design.

**LANGUAGE CONCORDANCE BETWEEN PHYSICIANS AND PATIENTS IN RUSSIAN DIABETICS.** I. Pines[1], K. Doll[1], R. Lundgrem[1], P.S. Mehler[1]; [1]Denver Health, Colorado Prevention Center, University of Colorado, Denver, CO *(Tracking ID #51929)*

BACKGROUND: Language concordance between physicians and patients is associated with greater patient satisfaction. However it is not clearly known if language concordance is also associated with improved quality of health care. This study was designed to compare the quality of diabetic care for Russian-speaking patients, before and after the hiring of a Russian-speaking internist and medical office assistant.
METHODS: We identified all Russian diabetic patients, through a computer search of administrative data base, who received their primary care at Denver Health for at least one year before the arrival of the Russian -speaking internist. In addition, they had to be seen at least twice for their diabetic care by this Russian physician between 1997 – 2000. Longitudinal data analysis of repeated measures was performed and we used chi-squared to test the association between language-cultural concordance and indicators of diabetic quality of care (Hemoglobin A1C, blood pressure and Lipid control in form of LDL-cholesterol).
RESULTS: Of 319 Russian patients in the entire cohort, 55 diabetic subjects were identified, 29 females and 26 males. Their average age was 65.4 years. LDL cholesterol decreased by 20% from 126 mg/dl to 101 mg/dl ($p < 0.0002$). Moreover, diastolic blood pressure was reduced from a level of 82.7 mmHg to 76.2 mmHg ($p < 0.0002$). Systolic blood pressure also trended downward from 143.1 mmHg to 140.6 mmHg (p = NS). In addition, glycosylated hemoglobin decreased from 8.36% to 7.95% ($p < 0.006$).
CONCLUSION: These data suggest that language and cultural concordance between Russian diabetic patients and their health care providers, are associated with improved diabetic metabolic and hypertension control. Additional efforts to develop culturally and linguistically appropriate health related interventions should be accomplished as we move forward to eliminate racial and ethnic disparities in health care.

**DISPARITIES IN OSTEOPOROSIS SCREENING BETWEEN HIGH RISK AFRICAN-AMERICAN AND CAUCASIAN WOMEN.** R.G. Miller[1], B.H. Ashar[1], K.J. Getz[1], M. Camp[1], J. Cohen[1], C. Coombs[1], C.R. Schneyer[2]; [1]Johns Hopkins University, Baltimore, MD; [2]Johns Hopkins Univerity, Baltimore, MD *(Tracking ID #50721)*

BACKGROUND: Osteoporosis is a major public health problem with significant morbidity and mortality related to fractures. There is a lower prevalence of osteoporosis in African-Americans compared with Caucasians, but bone loss in this population is not rare. Approximately 1.5 million African-American women have low bone density. African-American women also experience higher mortality after sustaining hip fractures. Established guidelines recommend that women with one or more risk factors (including age $\geq$65 and weight $\leq$127 lbs) be screened for osteoporosis. We hypothesize that physicians may underutilize osteoporosis screening in high-risk African-American women compared with screening referral in Caucasian women of similar risk.
METHODS: We conducted a cross sectional meidcal record review examining the prevalence of screening for osteoporosis in African-American and Caucasian women at high risk for the disease. The women visited an internist or internal medicine resident at either an academic medical center or community hospital clinic between January 1, 2000 and June 30, 2001. We defined high-risk as age $\geq$ 65 AND weight $\leq$127 lbs. We excluded women with terminal illnesses or life-expectancy <5 years. Abstracted data included demographics, osteoporosis risk factors, evidence for screening by DEXA scan referral, and compliance with screening. We used descriptive statistics and ANOVA to characterize the demographic variables between the two populations and chi-square analysis to determine the relationship between race and screening.
RESULTS: We reviewed 205 charts, which included the charts of 103 African-American women and 102 Caucasian women. African-American women were slightly older (mean age 80.4 vs. 77.8 years, p = 0.14) and were less likely to previously or currently use HRT (16.5% vs. 36.3%, p = 0.001). African-American and Caucasian women did not differ significantly by weight or history of hip fracture. Eighty-nine (43.4%) of the high-risk women were referred for DEXA. African-American women were referred significantly less often (32.0% vs. 54.9%, p = 0.001), but were equally compliant with screening when referred. Screening rates were not significantly different between internists vs. residents or academic vs. community physicians.
CONCLUSION: Our study results support the hypothesis that the prevalence of osteoporosis screening in high-risk African-American women is lower than in Caucasian women of similar risk. It is noteworthy that the African-American women were older and had lower HRT use, suggesting a potentially greater risk for osteoporosis and its subsequent morbidity and mortality. Further research is needed to determine the barriers to screening in this high-risk population.

**EMERGENCY DEPARTMENT EXPENSES OF MINORITIES ARE NOT HIGH; THEIR OTHER AMBULATORY COSTS ARE LOWER THAN WHITES'.** S.A. Mohanty[1], S. Woolhandler[1], D.U. Himmelstein[1]; [1]Cambridge Hospital and Harvard Medical School, Cambridge, MA *(Tracking ID #52046)*

BACKGROUND: Do minority patients with poor access to care overutilize the emergency department (ED), accounting for high healthcare costs?
METHODS: We measured ED and other ambulatory care costs for non-Hispanic Blacks, Hispanics, and non-Hispanic Whites using the 1998 Medical Expenditure Panel Survey (MEPS) of approximately 23,000 persons representative of the civilian non-institutionalized population. We used analysis of variance (ANOVA) to determine mean differences in utilization and costs among the three racial/ethnic groups.
RESULTS: In 1998, ED costs accounted for only 2.28% ($12.77 billion) of total healthcare expenditures. Whites accounted for 82% of ED costs, Blacks accounted for 13% and Hispanics for 10%. ED costs represented a higher proportion of health spending for Blacks and Hispanics than for Whites (Blacks: 2.9%, Hispanics: 3.2%, Whites 2.2%). Blacks and Whites had similar ED visit rates (20.2/100 persons vs. 18.3/100 persons, p = 0.09) and per capita ED expenses ($48.12 vs. $51.46, p = 0.5103). Hispanics had lower ED visit rates than Whites (14.2/100 persons vs. 18.3/100 persons, $p < 0.0001$) and lower per capita ED expenditures ($42.45 vs. $51.46, p = 0.03). Blacks and Hispanics had fewer office visits per capita than Whites (3.27 and 2.91 vs. 5.41, $p < 0.0001$) and markedly lower per capita office visit expense ($280.07 and $205.25 vs. $492.57, $p < 0.0001$). Similar patterns were observed for outpatient hospital utilization (per capita expense: Blacks $156.15, Hispanics $115.18 vs. Whites $253.450, $p < 0.001$) and prescription medication utilization (per capita expense: Blacks $248.01, Hispanics $150.82 vs. Whites $363.60, $p < 0.0001$).
CONCLUSION: Blacks and Hispanics use no more ED care than Whites. However, ED costs represent a higher proportion of ambulatory health spending for Blacks and Hispanics than for Whites because Blacks, and especially Hispanics, use far less of other types of outpatient care. ED costs account for a tiny proportion of total U.S. health expenditures and should not be blamed for high U.S. health spending. Policies that restrict or discourage ED use are likely to exacerbate racial and ethnic disparities in ambulatory care. Efforts should focus on expanding minorities' access to and use of ambulatory care.

**RACIAL VARIATIONS IN PROCESSES OF CARE FOR PATIENTS WITH COMMUNITY-ACQUIRED PNEUMONIA.** E.M. Mortensen[1], J. Cornell[1], T. Pederson[1], J. Whittle[2]; [1]VERDICT and Division of General Internal Medicine, Audie L. Murphy VA Hospital, San Antonio, TX; [2]Kansas City VA Hospital, Kansas City, KS *(Tracking ID #50793)*

BACKGROUND: Previous work has demonstrated that certain processes of care (POC), including antibiotic administration within 8 hours, are associated with decreased mortality for inpatients with community-acquired pneumonia (CAP). Other studies have demonstrated racial variations in the quality of health care for patients hospitalized with CAP however no one has previously examined racial variations in POC measures. Our aim was to assess racial differences in the performance of these important POC.
METHODS: The study population was Medicare fee-for-service inpatients hospitalized in Pennsylvania between 10/1/1998 and 9/30/1999 with a primary or secondary ICD-9 diagnosis of pneumonia. Patients were excluded if they were "comfort measures only", had no working diagnosis of pneumonia on admission, or were transferred from another acute care hospital. We performed a 3:1 matched case-control analysis matching black and white patients on age and gender. Process of care measures included: first antibiotics within 8 hours of admission, collection of blood cultures prior to antibiotic administration, oxygen saturation measurement within 24 hours of presentation, and concordance of antibiotic therapy with national guidelines. Severity of illness was quantified using the Pneumonia Severity Index (PSI). Multiple logistic regression models were derived with each of the individual POC measures or 30-day mortality as the dependent variable, and race and PSI as the independent variables.
RESULTS: There were 240 black and 720 white patients, 43.3% of whom were male. The median age was 76.0 years. In the multivariate analysis white patients were more likely to receive antibiotics within 8 hours (odds ratio with 95% CI 1.6, 1.1 – 2.3), and black patients at low risk were less likely to have blood cultures collected. There were no significant differences in the other process of care measures including oxygenation assessment (0.6, 0.3 – 1.1), and use of guideline concordant antibiotics (1.1, 0.8 – 1.6). Whites were more likely to die when low or moderate risk as compared to blacks (0.1, 0.01 – 0.9).
CONCLUSION: There are significant racial variations in POC with black patients less likely to receive antibiotics within 8 hours or have blood cultures drawn when low risk. There was no impact on patient outcomes. Further study is needed to determine why blacks have better short-term survival despite apparently inferior medical care.

**CHINESE AND VIETNAMESE-AMERICAN PATIENTS EVALUATION OF CARE.** Q. Ngo-Metzger[1], M.P. Massagli[1], B.R. Clarridge[2], J.L. Moorhead[2], R.S. Phillips[1]; [1]Beth Israel Deaconess Medical Center, Harvard Medical School, Boston, MA; [2]University of Massachusetts, Boston, MA *(Tracking ID #51527)*

BACKGROUND: Previous research suggests that, compared to white patients, Asian-American patients report more problems with care and are more likely to be dissatisfied with the care they received. These conclusions are based on surveys conducted in English, with little work done among limited-English proficient (LEP) patients.
METHODS: We conducted a survey of Chinese and Vietnamese-American patients in 4 community health centers in Massachusetts. A 69-item survey was administered via mail or phone interview in the language of the patient's choice (English, Vietnamese, Cantonese or Mandarin Chinese) (response rate 67%). We used logistic regression to examine how patient characteristics and problem reports predict ratings of care received in the last 12 months (excellent, very good, and good vs. fair or poor). Patient characteristics included: age, sex, ethnicity, marital status, education, time in the U.S., self-reports of health status, number of visits, self-assessed English-proficiency, language-concordance with provider, and interpreter use. Problem reports included problems with front desk staff and degree of difficulty obtaining care.
RESULTS: Of the 325 respondents, 57% were Vietnamese and 43% were Chinese (54% Cantonese, 46% Mandarin). The mean patient age was 44 years and the mean length of time living in the U.S. was 9 years. Overall, 82% reported that they spoke English poorly or not at all. Chinese patients were more likely than Vietnamese patients to be in excellent or very good health (25% vs. 12%, $p < 0.01$), to have a language-concordant provider (66% vs. 35%, $p < 0.01$), and less likely to use an interpreter (33% vs. 62%, $p < 0.01$). However, Chinese patients were more likely than Vietnamese patients to report difficulty getting care

(40% vs. 25%, p < 0.01), and to rate their care over the past 12 months as fair or poor (27% vs. 14%, p < 0.01). After adjustment for age, sex, and education, factors significantly associated with a fair or poor rating of care were: being Cantonese vs. Vietnamese (adjusted odds ratio 2.56, 95% confidence interval 1.16 – 5.69), reporting problems with front desk staff not always being helpful (2.93, 1.30 – 6.64), and reporting difficulty getting needed care (5.44, 2.69 – 11.00). English-proficiency, language-concordance, interpreter use, and other patient characteristics were not associated significantly with the overall rating of care.
CONCLUSION: Among Asian-American patients, being Cantonese was associated significantly with a worse rating of care. Patient perceptions of difficulty with office staff and getting needed care were also associated with worse ratings, suggesting that improving specific processes may improve patients' experiences of care.

**OLDER ASIAN AMERICANS DYING WITH CANCER USE HOSPICE LESS FREQUENTLY THAN OLDER WHITE PATIENTS.** Q. Ngo-Metzger[1], E.P. Mccarthy[1], F.P. Li[2], R.B. Burns[1], R.B. Davis[1], R.S. Phillips[1]; [1]Beth Israel Deaconess Medical Center, Harvard Medical School, Boston, MA; [2]Dana Farber Cancer Institute, Harvard Medical School, Boston, MA *(Tracking ID #51602)*

BACKGROUND: Cancer is the leading cause of death for Asian Americans (AA), yet little is known about hospice use among these patients. Hospice services are underutilized, even though they are covered by Medicare. We examined whether Asian-American patients use hospice less often than white patients and whether hospice use is affected by place of birth.
METHODS: We studied Medicare beneficiaries diagnosed with cancer at age 66 or older in the Surveillance, Epidemiology, and End Results (SEER) Program who died between Jan 1, 1988 and Dec 31, 1998. We used the SEER-Medicare Database to link demographic and cancer characteristics to Medicare hospice claims for patients diagnosed with lung (n = 56,911), colorectal (n = 51,961), prostate (n = 53,177), breast (n = 33,668), gastric (n = 8,761), and liver (n = 2,439) cancer. We excluded patients whose place of birth was unknown. We used logistic regression to determine the independent effects of race/ethnicity and place of birth on use of hospice, adjusting for patient demographics, managed care insurance, year of diagnosis, stage at diagnosis, and tumor registry.
RESULTS: Of the 206,997 patients, most were male (58%), white (85%), and born in the U.S. (89%). Asian Americans were 4% of the sample, half of whom were foreign-born. Compared to white patients, AA were more likely to be male (67% vs 57%), married (64% vs 55%), live in Northern California (30% vs 14%) or Hawaii (63% vs 1%), be enrolled in managed care (32% vs 9%), and be diagnosed with distant stage disease (29% vs 25%) (all p < 0.001). Compared to U.S. born Asians, foreign-born Asians were more likely to reside in low income areas (17% vs 10%) and be diagnosed with distant stage disease (30% vs 28%) (all p < 0.001). Overall, 20% of patients used hospice and hospice use varied by race/ethnicity and place of birth. Compared to U.S. born whites, U.S. born Asians were more likely to use hospice (23% vs 21%), while foreign-born Asians were less likely to use hospice (14% vs 21%) (p < 0.001). After adjustment, both U.S. born Asians (adjusted odds ratio 0.75, 95% CI 0.67 – 0.84) and foreign-born Asians (0.55, 0.49 – 0.61) were less likely to use hospice than U.S. born whites. We found similar results when we examined patients within each of the 6 cancer groups.
CONCLUSION: Asian Americans dying with cancer are less likely to use hospice care at the end of life than white patients. This is especially true for those who are foreign-born. Further research is needed to understand the reasons for these differences and eliminate any potential barrier to care.

**ETHNICITY, LANGUAGE, AND QUALITY OF DIABETES CARE.** T.T. Nguyen[1], N.A. Daniels[1], G. Gildengorin[1], T. Gonzalez[1], E.J. Perez-Stable[1]; [1]University of California, San Francisco, San Francisco, CA *(Tracking ID #51105)*

BACKGROUND: There are few studies on the role of ethnicity and language on quality of diabetes care. We evaluated diabetes outcomes in a multi-ethnic population.
METHODS: We performed a retrospective review of computerized medical records at an academic medical center from 1997 to 2000. Eligible patients were 50 years or older, had a self-reported race, ethnicity, or language, had a diagnosis of diabetes, and had 2 or more visits to 5 outpatient practices. Outcomes were having had the following tests at least once during the 3 years: creatinine (Cr), total cholesterol (TC), microalbuminuria (MA), ophthalmology exam (OPHT), hemoglobin A1c. Other outcomes were last A1c value <8 or a systolic blood pressure (BP) < 140. We used the chi-square test of significance and constructed multivariate models to assess the association of predictors with outcomes.
RESULTS: Out of 2252 patients,16% were African American (Af-Am), 29% Asian, 10% Latino, 13% Russian, 32% White (non-Latino non-Russian); 60% spoke English. Non-English were significantly less likely than English speakers to have had a Cr (37% vs 59%), TC (34% vs. 55%), MA (24% vs. 34%), or A1c (36% vs. 56%) test, and less likely to have had a systolic BP < 140 (54% vs. 58%) or an A1c < 8 (57% vs. 66%) (all p < 0.05). Table 1 shows outcomes by ethnicity. In multivariate analyses, Russians were less and Latinos more likely to have had a Cr, TC, MA, or A1c test compared to Whites. Non-English speakers were less likely to have had a Cr, TC, or A1c test and an A1c < 8 compared to English speakers.
CONCLUSION: Receipt of recommended tests for diabetes were low in all ethnic groups. Non-English speaking status was negatively correlated with receipt of recommended tests.

**Table 1. Proportion with Outcome by Ethnicity**

| | Cr | TC | MA | OPHT | A1c | A1c < 8 | BP < 140 |
|---|---|---|---|---|---|---|---|
| Af-Am | 63 | 56 | 35 | 46 | 61 | 63 | 49 |
| Asian | 50 | 47 | 32 | 57 | 48 | 65 | 61 |
| Latino | 67 | 62 | 46 | 57 | 66 | 54 | 57 |
| Russian | 6 | 6 | 4 | 32 | 6 | 53 | 47 |
| White | 58 | 53 | 32 | 44 | 54 | 66 | 58 |
| p | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | 0.12 | <0.01 |

**OLDER ETHNIC MINORITY PATIENTS WITH REGULAR CARE USE MORE AMBULATORY BUT NOT HOSPITAL SERVICES.** T.T. Nguyen[1], N.A. Daniels[1], G. Gildengorin[1], T. Gonzalez[1], EJ. Perez-Stable[1]; [1]University of California, San Francisco, San Francisco, CA *(Tracking ID #51417)*

BACKGROUND: Minorities with poor access to care utilize more emergency care. We evaluated utilization in a multi-ethnic population with access to regular care.
METHODS: We performed a retrospective review of computerized medical records at an academic medical center from 1997 to 2000. Eligible patients were 50 years or older, had a self-reported race, ethnicity, or language, and had 2 or more visits to one of 5 outpatient practices (cardiology, diabetes, family practice, general medicine, and pulmonary). Outcomes were number of visits to all 5 practices (outpatient), urgent care (UC), emergency room (ER), and hospital admissions. We calculated average annual visit rates and adjusted for age, gender, language, insurance, and major medical diagnoses. We used the chi-square test of significance for univariate analyses and constructed multivariate regression models to assess the association of ethnicity to utilization.
RESULTS: Out of 14556 patients with mean age 66 years, there were 11% Af-Am, 23% Asian, 9% Latino, 10% Russian, and 47% White (non-Russian non-Latino). Minority patients were more likely to have had major medical diagnoses such as diabetes or hypertension. African Americans (6.8 outpatient visits/year), Asians (5.5), Latinos (6.9), and Russians (7.7) all had more outpatient visits than Whites (4.8). African Americans (0.66 UC visits/year), Asians (0.54), and Latinos (0.70) had more urgent care visits while Russians (0.20) had fewer compared to Whites (0.45). Asians (0.39 ER visits/year), Latinos (0.41), and Russians (0.44) had similar number of ER visits as Whites (0.33) while African Americans (0.48) had more. For hospital admissions, Latinos had similar rates (1.9 admissions/year) compared to Whites (1.9); Asians (1.5) and Russians (1.7) had fewer hospital admissions while African Americans (2.5) had more compared to Whites. All differences were significant (p < 0.01). Multivariate analyses results were similar to univariate results.
CONCLUSION: Compared to White patients, minority patients with access to regular care had more outpatient and urgent care visits. However, they did not have more ER visits or hospital admissions despite having more major medical diagnoses. Our findings suggest that adequate access to outpatient care and urgent care is associated with lower use of high cost emergency and hospital services in these populations.

**EMERGENCY DEPARTMENT VISITS FOR AMBULATORY CARE SENSITIVE CONDITIONS: INSIGHTS INTO PREVENTABLE HOSPITALIZATIONS.** A. Oster[1], A.B. Bindman[1]; [1]University of California, San Francisco, San Francisco, CA *(Tracking ID #50809)*

BACKGROUND: Blacks, Medicaid, and uninsured patients have higher hospitalization rates for ambulatory care sensitive conditions (ACSC). These increased hospitalizations could be a result of: 1) higher prevalence of ACSC, 2) delays in care resulting in greater illness acuity on medical evaluation, 3), lower physician hospitalization threshold for patients thought to have less access to outpatient care.
METHODS: We used the 1998 National Health Interview Survey to estimate the prevalence of five chronic ACSC: asthma, chronic obstructive lung disease, congestive heart failure, diabetes mellitus, and hypertension, among adults aged 18 – 64. We used the 1995 – 1998 emergency department (ED) components of the National Hospital Ambulatory Care Survey to analyze the frequency of ED utilization, triage acuity rating on presentation to EDs, and the hospitalization rates of adults seen in EDs with primary diagnosis of one of the five chronic ACSC.
RESULTS: Although blacks make up a smaller proportion of the 18 – 64 year old general population than do whites (12% vs 73%) they account for disproportionately greater number of ED visits for ACSC (32% vs 56%). Medicaid and self-pay patients comprise 36% of the general population but made 41% of these ED visits. ACSC prevalence was lower in whites than blacks (27%vs 33%) and similar between those privately insured, Medicaid, and self-pay patients (33%). EDs assigned similar mean triage ratings to patients seen with ACSC regardless of race or insurance category. Similar percentages of patients from all racial and insurance groups with ACSC conditions were admitted from the ED (16%) These similarities persisted even after controlling for patients' age, sex, and triage rating. EDs were less likely to arrange for follow-up care with non-ED physicians for black than white patients (19% vs 23%, p = .003) and for Medicaid and self-pay patients versus privately insured patients (15% vs 20%, p = 0.009)
CONCLUSION: Differences in disease prevalence and physicians' admitting practices are not sufficient to explain variation in ACSC hospitalization rates by race and insurance status. Blacks, Medicaid, and self-pay patients present to EDs for ACSC with the same triage scores as other patients suggesting that they do not differ in their threshold for seeking ED care. However the finding that a greater proportion of black, Medicaid, and self-pay patients present to the ED with the same level of acuity as other patients and are less likely to have non-ED follow-up plans, supports the hypothesis that lack of access to outpatient care leads to deterioration of their health and to excess hospitalizations.

**INSTITUTIONAL REVIEW BOARDS FAIL THEIR OWN INFORMED CONSENT READABILITY STANDARDS.** M.K. Paasche-Orlow[1], F.L. Brancati[2]; [1]Johns Hopkins University, Department of Medicine, Baltimore, MD; [2]Johns Hopkins University Departments of Medicine and Epidemiology, Baltimore, MD *(Tracking ID #51803)*

BACKGROUND: Over 20% of U.S. adults are functionally illiterate; 47% read below a 9th grade level. Federal statute mandates that institutional review boards (IRBs) ensure that informed consent forms (ICFs) for human research are written in language subjects can understand. Since IRBs often present templates and/or sample ICFs, much of the final text of ICFs originates from IRBs. No study has tested the hypothesis that text promulgated by IRBs meet their professed readability standards.
METHODS: To fill this literature gap, we conducted a cross-sectional study by linking data from several public-use sources. U.S. medical school websites were surveyed for a) professed readability standards and b) templates and sample ICFs. Actual readability of abstracted text

was measured with the Flesch-Kincaid (F–K) readability scale (range 0–12th grade). The NIH website yielded the rank order of medical school funding in 2000, the National Institute for Literacy website provided level of functional illiteracy by congressional district for each medical school (range 10–53%), and The Office for Human Research Protections (OHRP) website listed medical schools that underwent compliance oversight in the past two years.
RESULTS: Relevant data were extractable from 98/124 (79%) medical school websites evaluated. Mean F–K grade level of IRB text was 10.6 (SD = 1.4). Specific grade level standards found in 52/98 (53%) websites ranged from 5th–10th (mode 8th) grade. (The remaining 46 (47%) sites contained descriptive guidelines like "in simple lay language.") While 4/52 (7.7%) met their professed standards, actual F-K scores averaged 2.8 (SD = 1.6) grade levels higher. Readability standards were not associated with local estimates of functional illiteracy (P = 0.84). F-K scores did not vary according to stated grade level standard (P = 0.55), quartile of NIH grant funding (P = 0.83), or local estimates of functional illiteracy (P = 0.26). Schools that underwent recent OHRP oversight (46/98; 47%) had lower F-K scores (10.2 vs. 10.9, P = 0.02). In ICFs that post-date OHRP oversight, 23/46 (50%), the mean F-K score was even lower (grade level 9.9; SD = 1.7).
CONCLUSION: IRB readability standards vary, however, not in a fashion that reflects local estimates of illiteracy. IRBs do not meet their own readability standards. Actual reading level of text presented by IRBs is not influenced by readability standards, level of research activity, or local estimates of illiteracy. While recent OHRP oversight was associated with better readability, the language presented by IRBs remains beyond the ken of the majority of American adults.

**THE EFFECT OF CURRENT INJECTION DRUG USE ON PLASMA VIRAL LOAD AMONG PARTICIPANTS IN THE HIV/AIDS DRUG TREATMENT PROGRAM.** A. Palepu[1], M.W. Tyndall[1], B. Yip[1], M.T. Schechter[1], M.V. O'Shaughnessy[1], J.S. Montaner[1], R.S. Hogg[1]; [1]University of British Columbia, Vancouver, British Columbia, Canada *(Tracking ID #52161)*

BACKGROUND: There is emerging evidence that injection drug users who continue to use drugs may not respond to HAART as well as other HIV-infected individuals, even after adjusting for self-reported adherence. We therefore compared the virologic response among participants in a population-based HIV/AIDS Drug Treatment Program by injection drug use activity.
METHODS: We identified injection drug users who were HIV-infected, naive to antiretroviral therapy and started antiretroviral treatment between 08/96 and 12/00 through the provincial HIV/AIDS Drug Treatment in Program in British Columbia, Canada. We ascertained their drug using activity from their most recent questionnaire that is routinely collected as part of the HIV/AIDS Drug Treatment Program. Participants were classified as current, former or non-injection drug users. The main outcome was having two consecutive plasma viral load suppressions to less than 500 copies/mL. We used logistic regression to adjust for baseline plasma viral load, baseline CD4 cell count, type of antiretroviral regimen (2 nucleosides + protease inhibitor (PI) versus 2 nucleosides + nnRTI), duration of therapy (months), 95% adherence (using pharmacy refill data), and age.
RESULTS: 542 participants were first prescribed HAART during the study period and had complete plasma viral load and CD4 cell count data. 69 (13%) were current injection drug users, 83 (15%) were former injection drug users and 390 (72%) never injected drugs. The proportion of participants who were 95% adherent to HAART was 54%, 67%, and 82% for current, former and non- drug users, respectively. The proportion of participants who suppressed their plasma viral load was 71% for current drug users, 86% for former drug users and 93% for non-drug users. In the multivariable logistic regression, the following factors were associated with achieving viral load suppression (adjusted odds ratio; 95% CI): 95% adherence (2.7; 1.4–5.5); time on therapy (1.11; 1.07–1.15); 2 nucleosides + nnRTI vs 2 nucleosides + PI (3.9; 1.7–9.0). Relative to non-drug users, current injection drug users were significantly less likely to suppress their plasma viral load (0.37; 0.17–0.82) and former injection drug users were not significantly different than non-drug users (0.57; 0.24–1.4).
CONCLUSION: Current injection drug users were less likely to adhere to HAART and were also less likely to achieve plasma viral load suppression compared to non-drug users. Former drug users had similar response as non-drug users. Strategies that integrate effective addiction treatment with HIV care are urgently needed for this population so that they may derive the benefits of HAART.

**IMPACT OF RACE ON PROCESS OF CARE AND OUTCOME IN VETERANS WITH ACUTE MYOCARDIAL INFARCTION.** L.A. Petersen[1], S. Wright[2], E. Peterson[3], J. Daley[4]; [1]Houston VAMC, Houston, TX; [2]Boston VAMC, Boston, MA; [3]Duke University, Durham, NC; [4]Harvard University, Boston, MA *(Tracking ID #51898)*

BACKGROUND: The goal of this study was to assess racial differences in process of care and outcome for acute myocardial infarction in the VA health care system.
METHODS: This was a retrospective cohort study using clinical data from 4,760 veterans discharged with a confirmed diagnosis of acute myocardial infarction (AMI) from 81 acute care VA hospitals. The analysis was restricted to 606 African-American and 4,005 white patients. Data on comorbid conditions, severity of AMI, and angiography findings were collected using the Cooperative Cardiovascular Project data collection instrument. The measures were comparison of use of guideline-based medications, diagnostic angiography, invasive cardiac procedures for patients with defined coronary anatomy, and all-cause mortality at 30 days, 1 year, and 3 years. We assessed use of procedures up to 90 days after admission, including those veterans who obtained procedures under Medicare financing.
RESULTS: African-American patients were equally likely to receive beta-blockers, more likely than whites to receive aspirin (86.8% vs. 82.0%; P < 0.05), and marginally more likely to receive angiotensin converting enzyme inhibitors (55.7% vs. 49.6%; P = 0.07) at the time of discharge. In contrast, African-American patients were less likely than whites to receive thrombolytic therapy at the time of arrival (32.4% vs. 48.2%; P < 0.01). There was no significant difference in refusal of angiography (5.1% vs. 5.1%) or percutaneous transluminal coronary angioplasty (0.7% vs. 1.4%; P = 0.23) between African-Americans and whites, nor in crude rates of angiography (44.7% vs. 42.4%;P = 0.30) or angioplasty (12.5% vs. 11.6%;P = 0.51). There was also no difference overall in the percentage of patients who refused coronary artery bypass graft surgery. However, African-American patients were less likely than whites to undergo bypass surgery (6.9% vs. 12.5% by 90 days in either VA or under Medicare financing; P < 0.001). African-Americans remained less likely to undergo bypass surgery even when high-risk specific coronary anatomy subgroups were examined. Among those with left main coronary artery occlusion or three-vessel disease, only 23.9% of African-American vs. 51.2% (P < 0.001) of white patients underwent bypass surgery in the 90 days following admission. There was no difference in short- or long-term mortality.
CONCLUSION: In this integrated healthcare system, we found no significant racial disparities in use of non-interventional therapies, diagnostic coronary angiography, or short- or long-term mortality. Disparities in use of thrombolytic therapy and coronary artery bypass surgery existed, however, even after accounting for differences in clinical indications for treatment and patient refusals. Since racial disparities were not a function of clinical indications or patient refusals, further work should assess the role of the medical interaction and physician behavior in racial disparities in use of health care.

**DISPARITIES IN PREVENTIVE SERVICE USE IN THE OBESE.** A.B. Rosen[1], E.C. Schneider[1]; [1]Harvard School of Public Health, Boston, MA *(Tracking ID #50449)*

BACKGROUND: Obese women are less likely to receive mammography and PAP smears, but little is known about disparities in other important preventive services. Compared with others, morbidly obese individuals have significantly higher mortality rates. Lower rates of preventive service use might account for part of this difference. We hypothesized that morbidly obese individuals would be less likely to receive all preventive services. We explored whether disparities were related to the complexity and invasiveness of preventive services and whether disparities would be larger among women than among men.
METHODS: A nationally representative sample of 123,293 respondents to the 1999 BRFSS, a cross-sectional population-based survey, was analyzed. In order of increasing complexity/invasiveness, the preventive services examined included flu shots (flu), pneumovax, clinical breast exam (CBE), mammography (mamm), Papanicolaou smears (PAP), and fecal occult blood testing or sigmoidocsopy for colon cancer screening (CCS). Selection of populations and screening frequencies for each preventive service were based on national guidelines of care. Sample sizes ranged from 19,168 to 47,732 representing 21 to 55 million US adults. Morbid obesity was defined as WHO obesity classes 2 and 3 (BMI > 34.9). Multiple logistic regression was used to examine the impact of morbid obesity on the use of each service adjusting for demographics, health status, tobacco use, insurance, socioeconomic status, and time since last physician visit. We stratified and repeated analyses separately for men and women.
RESULTS: Unadjusted rates of preventive service use were 67.1% for flu shot, 54.4% for pneumovax, 70.3% for CBE, 80.3% for mammography, 88.9% for PAP, and 43.9% for CCS. Morbidly obese respondents were significantly less likely to get CCS (adjusted rate difference (aRD) −4.0%, p < 0.001) and significantly more likely to get pneumococcal vaccinations (aRD+8.6%, p < 0.05). In stratified analyses by gender, these disparities were significant only for women. Morbidly obese women received significantly lower rates of colon cancer screening (aRD −7.6%, p < 0.001) and higher rates of pneumococcal vaccination (aRD+9.2%, p < 0.05) compared to others.
CONCLUSION: This study found significant disparites in the use of some preventive services among the morbidly obese. While immunization rates are higher, perhaps due to increased frequency of physician visits, cancer screening rates are lower among morbidly obese women. Future studies should explore the causes of and potential remedies to these disparities in order to increase preventive service use and, therefore, quality of care for this high risk population.

**LACK OF RACIAL AND ETHNIC DISPARITIES IN ACE-INHIBITOR USE AMONG PATIENTS WITH DIABETES.** A.B. Rosen[1], A.J. Karter[2], E.C. Schneider[1], J.Y. Liu[2], J.V. Selby[2]; [1]Harvard School of Public Health, Boston, MA; [2]Kaiser Permanente Division of Research, Oakland, CA *(Tracking ID #50487)*

BACKGROUND: African Americans with diabetes experience more rapid deterioration of renal function and a significantly higher incidence of end stage renal disease (ESRD). Despite a national call to eliminate racial and ethnic disparities in diabetes care by 2010, little is known about rates of use of ACE-Inhibitors to prevent or slow nephropathy among different racial and ethnic groups with diabetes. The purpose of this study was to examine ethnic differences in the use of ACE-Inhibitors among patients with diabetes.
METHODS: Cross-sectional study of 42,593 enrollees with diabetes who responded to a survey by the Northern California Kaiser Permanente Diabetes Registry. Ethnicity was based on self-report. Use of ACE-Inhibitors and Angiotensin Receptor Blockers (ARB) were defined by pharmacy claims data. We compared rates of use of ACE-I and ARB among African Americans, Whites, Asians, and Hispanics stratified on the basis of presence or absence of hypertension and albuminuria. Multivariate logistic regression explored disparities in ACE-I use by race/ethnicity while adjusting for demographics, comorbidities, diabetes type and degree of glycemic control, education, socioeconomic status, and drug benefit copayment amount.
RESULTS: Sixty-two percent of patients were white, 14% black, 10% hispanic, and 13% asian. The overall rate of ACE-Inhibitor use was 59.5%. Overall rates of ACE-Inhibitor use were 61.8% in blacks, 59.6% in whites, 58.1% in asians, and 58.2% in hispanics. There were no racial/ethnic disparities in the clinical subgroups we examined except that among normotensive patients with albuminuria there was a 10 percentage point lower rate of ACE-I use in African Americans compared to whites (56.1% vs. 65.4%; adjusted OR 0.67, 95%CI 0.52–0.87).
CONCLUSION: In this cohort of health plan enrollees with diabetes, there were few racial or ethnic disparities in the use of ACE-Inhibitors.

**THE RELATIONSHIP BETWEEN A NEW DIABETES KNOWLEDGE TEST AND GLYCEMIC CONTROL FOR UNDERSERVED PATIENTS WITH TYPE 2 DIABETES.** R. Rothman[1], M.P. Pignone[1], R. Malone[1], B. Bryant[1], C. Horlen[1], P. Padgett[1]; [1]University of North Carolina at Chapel Hill, Chapel Hill, NC *(Tracking ID #52324)*

BACKGROUND: Patient knowledge about diabetes and its appropriate care is an important factor in diabetes management and patient outcomes. While some knowledge scales have been assessed for patients with Type 1 diabetes, few have been developed specifically for vulnerable patients with Type 2 diabetes and poor glucose control.
METHODS: We developed a new diabetes knowledge test (DKT) to assess patient core knowledge about glucose management and the recognition and treatment of diabetes related complications. The DKT is a 10-item questionnaire that can be administered in 10 minutes or less. It was designed as a verbal test to avoid problems with low health literacy. To examine the role of the DKT we administered it to 165 patients with Type 2 Diabetes and poor glucose control (HgbA1c 8.0%) who were being enrolled into a randomized controlled trial.
RESULTS: Mean age was 54.6 years; 56% were Female, 64% African American, and 43% reported income <$10,000/yr. Average duration of diabetes was 8.1 years. Mean HgbA1c was 10.7%. 40% of patients reported less than a high school education. On REALM (a well validated test of health literacy), 58% of patients had less than a 9th grade reading level. Average score on the DKT was 50%. Only 59% of patients knew the symptoms of hyperglycemia, and only 26% knew the symptoms of hypoglycemia. Only 24% of patients knew the normal blood glucose range (70–120mg/dl), and only 8% knew a normal HA1c range (Normal ≤6.0%, or Target ≤7.0%). The DKT was significantly correlated with REALM, education level and HA1c (r = 0.38, 0.38, −0.18, and p <0.001, <0.001, <0.05 respectively). When dichotomized to low and high knowledge scores (>50%), Patients with low knowledge (DKT ≤50%) had a mean HgbA1c of 11.1%, while those with high knowledge (DKT >50%) had a mean of 10.3% (Difference 0.8%, [95% CI 0.1, 1.4]). This difference remained significant when adjusted for potential confounders.
CONCLUSION: A 10-item knowledge test (DKT) was significantly correlated with education and literacy levels, and was also a potential predictor of glycemic control, as measured by HgbA1c. Further examination and validation of this scale is indicated.

**THE RELATIONSHIP BETWEEN HEALTH LITERACY AND DIABETES RELATED MEASURES FOR PATIENTS WITH TYPE 2 DIABETES.** R. Rothman[1], M. Pignone[1], R. Malone[1], B. Bryant[1], C. Horlen[1], P. Padgett[1]; [1]University of North Carolina at Chapel Hill, Chapel Hill, NC *(Tracking ID #52348)*

BACKGROUND: Health literacy has recently been recognized as an important potential barrier to clinical outcomes. Only a few studies have specifically examined the role of health literacy in patients with Type 2 diabetes and poor glucose control.
METHODS: A cross-sectional survey of patients with poor glucose control (HgbA1c ≥8.0%) was performed on patients who were being enrolled in a randomized controlled trial. In addition to demographic and clinical data, patient literacy was assessed using a well validated instrument, the REALM (Rapid Estimate of Adult Literacy in Medicine),and patient knowledge of diabetes was measured with a 10-item questionnaire.
RESULTS: Data is available for 165 of 169 patients (97.6%). Mean age was 54.6 years; 56% were Female, 64% African American, and 43% reported income <$10,000/yr. Average duration of diabetes was 8.1 years. Mean HgbA1c was 10.7%. 40% of patients reported less than a high school education. On REALM, 58% of patients had low literacy (less than a 9th grade reading level). There were significant differences in knowledge based on literacy status (SEE TABLE). Patients with low literacy were also more likely to be African American, have lower household income, lower reported educational attainment and lack private insurance. There was no significant difference by literacy status, in patient age, gender, and duration of diabetes or in clinical markers such as HA1c, blood pressure, or cholesterol.

| Knowledge of: | Low Literacy (%correct) | High Literacy (%correct) | p value |
|---|---|---|---|
| Signs of hyperglycemia | 50 | 70 | .02 |
| Signs of hypoglycemia | 18 | 36 | .008 |
| Treatment of hypoglycemia | 73 | 85 | .07 |
| Frequency of foot care | 52 | 68 | .04 |
| Importance of foot care | 68 | 71 | .68 |
| Frequency of eye exams | 64 | 71 | .33 |
| Normal fasting glucose (70-120) | 19 | 29 | .14 |
| Normal HA1c(≤6.0 or Goal≤7.0) | 1 | 18 | .001 |
| Frequency of exercise | 24 | 46 | .003 |
| Long term complications of diabetes | 70 | 91 | .001 |

CONCLUSION: Patients with low literacy clearly have lower knowledge of the information that is important for proper care of diabetes. Despite these deficits, no clear differences in baseline clinical markers were seen. Further evaluation of the role of health literacy is clearly indicated.

**RACE-RELATED DIFFERENCES IN LOWER EXTREMITY FUNCTIONING IN PATIENTS WITH PERIPHERAL ARTERIAL DISEASE.** C. Rucker-Whitaker[1], P. Greenland[2], K. Liu[2], C. Chan[2], W.H. Pearce[2], M.M. Mcdermott[2]; [1]Rush Presbyterian St. Luke's Medical Center, Chicago, IL; [2]Northwestern University Medical School, Chicago, IL *(Tracking ID #52295)*

BACKGROUND: Lower-extremity peripheral arterial disease (PAD) occurs commonly in African-Americans (AA). This study investigates whether there are differences in functional limitations between AA and non-AA with PAD.
METHODS: 460 men and women with PAD were identified from non-invasive vascular laboratories of three Chicago area medical centers. PAD was defined as Ankle Brachial Index < 0.90. Lower extremity functional measures included the six-minute walk and four-meter walking velocity. Patients were also questioned about the number of blocks walked in the last week and number of stair flights climbed in the last week.
RESULTS: As compared to non-African-American (n = 383) PAD participants, AA (n = 76) were younger (70.2 (8.6) vs 72.1(8.4), p = .104), less likely to be male (43.4% vs 62.4%, p = .002), had a lower ABI (0.60(.16) vs 0.66 (.14) p = .001), and were more likely to have diabetes (47% vs 29%, p = .002). Main results in table below:

**Leg functioning in AA and non AA with PAD***

| | | AA (n=76) | Non-AA (n=383) | p-value |
|---|---|---|---|---|
| 6-minute walk (ft) | Unadjusted | 991 | 1154 | **.0005** |
| | Adjusted | 1063 | 1140 | .064 |
| Normal pace 4 meter walking velocity (m/sec) | Unadjusted | .80 | .89 | **<.0001** |
| | Adjusted | .82 | .89 | **.007** |
| No.of blocks walked last week | Unadjusted | 30 | 33.6 | .642 |
| | Adjusted | 33 | 33 | .983 |
| No.of stair flights climbed last week | Unadjusted | 12.7 | 18.1 | .112 |
| | Adjusted | 13.6 | 18 | .213 |
| Summary Performance Score (0-12, 12=best)** | Unadjusted | 8.8 | 9.6 | **.013** |
| | Adjusted | 9.2 | 9.5 | .336 |

* Adjusted for age, sex, abi, cardiovascular disease, arthritis, diabetes, cancer, and pulmonary disease. ** Summary performance score combined performance on walking velocity, repeated chair rises, and standing balance tests.
CONCLUSION: AA patients have poorer lower extremity functioning than non-AA patients. These differences appear to be largely attributable to differences in clinical characteristics between AA and non-AA patients with PAD.

**EXPLAINING RACIAL VARIATION IN LOWER-EXTREMITY AMPUTATION: A FIVE-YEAR RETROSPECTIVE CLAIMS DATA AND MEDICAL RECORDS REVIEW AT AN URBAN TEACHING HOSPITAL.** C. Rucker-Whitaker[1], J. Feinglass[2], W.H. Pearce[2]; [1]Rush Presbyterian St. Luke's Medical Center, Chicago, IL; [2]Northwestern University Medical School, Chicago, IL *(Tracking ID #52331)*

BACKGROUND: African-American (AA) patients undergo major lower extremity (LE) amputation two to three-times more frequently than white Americans. This medical records review of racial differences in major amputations addresses whether AA patients differ from white patients with respect to 1) the risk of admission for major LE amputation vs admission for LE revascularization 2) the proportion of amputees of each race undergoing primary amputation (without any prior bypass surgery or angioplasty) vs secondary amputations, and 3) the proportion of amputees of each race undergoing a repeat major amputation after prior above knee, below knee or through foot amputation.
METHODS: Study hospital admission data for 1995–2000 were selected for all patients discharged with procedure codes for LEAB, angioplasty, and major amputation. All AA and a randomly selected sample of white amputees were selected for medical records review and a standard abstraction form to obtain information related to diabetes, comorbidites, prior revascularization, presenting leg/foot symptoms.
RESULTS: For patients (n = 1127) admitted with all lower-extremity PAD diagnoses between 1995–2000, AA were more likely to be younger (p = .04) and female (p < .001). The likelihood of having diabetes trended towards significance (p = .07). African-Americans were more likely than whites/Hispanic/other to have a major amputation (p = .002). Logistic regression found that AA are more likely than all others to undergo a major amputation than revascularization (OR = 1.69, p = .005) and that diabetes was a significant predictor of undergoing a major amputation (OR = 1.59, p = .006). AA and whites had an equal chance of primary amputation.
CONCLUSION: Our findings that African-Americans undergo repeat amputations at a significantly higher rate than whites may explain the 1.5 to 3x increased risk of amputation found in prior claims data studies including our one hospital claims analysis.

**Table 1. Repeat Amputation (Amp) vs First Amputation Admissions 1995–2000**

| | Repeat Amp n = 32 | First-time Amp n = 88 | Odds Ratio | P-Value |
|---|---|---|---|---|
| African-American* | 21 (66%) | 39 (44%) | 2.5 | .04 |
| Male | 17 (53%) | 49 (56%) | .86 | .76 |
| Diabetes | 20 (63%) | 60 (68%) | .715 | .46 |
| Mean Age | 67 (sd = 10) | 65 (SD = 13) | 1.01 | .14 |

**ASSOCIATION OF FUNCTIONAL HEALTH LITERACY AND DIABETES OUTCOMES.** D. Schillinger[1], K. Grumbach[1], J.D. Piette[2], F. Wang[1], D. Osmond[2], C. Daher[3], J. Palacios[1], G.D. Sullivan[1], A.B. Bindman[1]; [1]University of California, San Francisco, San Francisco, CA; [2]University of Michigan, Ann Arbor, MI; [3]Johns Hopkins School of Public Health, Baltimore, MD *(Tracking ID #50142)*

BACKGROUND: Functional health literacy (FHL) is a measure of patients' ability to read, comprehend, and act on medical instructions. Low FHL is common among patients with chronic conditions, racial and ethnic minorities, the elderly, and patients cared for in public-sector settings. Little is known about the extent to which FHL impacts health outcomes.

METHODS: Cross sectional study, using patient questionnaires and a computerized clinical database, to examine the association between FHL, glycemic control, and diabetes complications among 408 English- and Spanish-speaking patients with type 2 diabetes cared for at a public hospital's primary care clinics. We assessed patients' FHL using the Test of Functional Health Literacy in Adults, short-form (s-TOFHLA), English or Spanish version. We created quartiles of HbA1c and classified patients as having "tight" glycemic control if their HbA1c was in the lowest quartile and "poor" control if it was in the highest quartile. We also measured the presence of self-reported diabetes complications.
RESULTS: After adjusting for patients' sociodemographic characteristics, depressive symptoms, social support, treatment regimen, and years with diabetes, a lower s-TOFHLA score was associated with higher HbA1c ($p < .01$). Patients with inadequate FHL were less likely to achieve tight glycemic control (HbA1c <7.2%; adjusted O.R. 0.57, 95% C.I. 0.31 – 1.00, p = .05) and were more likely to have poor glycemic control (HbA1c >9.5%; adjusted O.R. 2.06, 1.12 – 3.79, p = .02). Patients with inadequate FHL were more likely to have retinopathy (adjusted O.R. 2.17, 95% C.I. 1.12 – 4.21, p = .02), but not coronary artery disease (adjusted O.R. 1.54, 95% C.I. 0.64 – 3.29, p = 0.22).
CONCLUSION: Among primary care patients with type 2 diabetes, inadequate FHL is independently associated with worse glycemic control and higher rates of retinopathy. FHL represents a potentially remediable factor explaining the disproportionate burden of diabetes-related suffering among disadvantaged populations.

**RACIAL DISPARITIES IN THE QUALITY OF CARE FOR ENROLLEES IN MEDICARE MANAGED CARE.** E.C. Schneider[1], A.M. Zaslavsky[1], A.M. Epstein[1]; [1]Harvard University, Boston, MA *(Tracking ID #52430)*

BACKGROUND: There are substantial racial disparities in the utilization of some health services, however, some disparities in utilization may be clinically justifiable. Much less is known about racial disparities in the quality of care. The National Committee for Quality Assurance's HEDIS measures were explicitly designed to assess quality of care delivered by health plans.
METHODS: We examined differences in HEDIS scores among African American and white Medicare beneficiaries over age 65 who were enrolled in 294 health plans in the U.S. during 1997. We calculated percentages of African American and white enrollees receiving each of four clinical services assessed by HEDIS breast cancer screening (BCS), diabetic eye examinations (DEE), beta-blocker medication after myocardial infarction (BBMI), and follow-up after hospitalization for mental illness (FHMI). Using logistic regression models, we calculated adjusted rates after controlling for other sociodemographic characteristics of patients including age, sex, income, educational attainment, rural residence, and Medicaid insurance. We also included health plan dummies to control for differences in health plan quality.
RESULTS: Among 3,977,235 eligible managed care enrolled beneficiaries, 305,574 (7.7%) were included in at least one of the four HEDIS measures. African Americans were less likely than whites to receive BCS (62.9% vs. 70.2%), DEE (43.6% vs. 50.4%), BBMI (64.1% vs. 73.8%), and FHMI (33.2 vs. 54.0%). After adjustment for potential confounding factors including age, sex, Medicaid insurance, income, education, rural residence, and the health plan, racial disparities remained statistically significant for the DEE, BBMI, and FHMI measures, but not for the BCS measure.
CONCLUSION: Among Medicare beneficiaries enrolled in health plans, African Americans received poorer quality of care than whites on four widely used HEDIS measures of quality of care. Enrollment of larger proportions of African Americans in poorer quality health plans did not explain these differences.

**EMERGENCY DEPARTMENT AND INPATIENT UTILIZATION BY RACIAL/ETHNIC MINORITIES.** M. Smith[1], L. Egede[1]; [1]Medical University of South Carolina, Charleston, SC *(Tracking ID #51839)*

BACKGROUND: Previous data suggests that racial/ethnic minorities are more likely to utilize emergency department (ED) and inpatient services, in lieu of the the traditional outpatient setting.
METHODS: We analyzed data on adults 18 years or older from the 1996 Medical Expenditure Panel Survey (MEPS), a nationally representative survey of the noninstitutionalized population of the U.S., with over sampling of blacks and Hispanics, conducted by the Agency for Healthcare Research and Quality. We defined ED and inpatient utilization as having at least one ED visit or inpatient discharge in 1996. We used the Chi-square statistic to determine unadjusted differences in utilization for blacks and Hispanics versus whites. We used multiple logistic regression to control ED and inpatient utilization for age, sex, marital status, education, income, employment status, insurance status, having a usual source of care, and perceived health status. We calculated odds ratios and 95% confidence intervals of adjusted ED and inpatient utilization in blacks and Hispanics compared to whites. We used STATA for statistical analyses to account for the complex sampling design of MEPS and to provide nationally representative estimates.
RESULTS: 12.5% and 8.1% of adults had emergency department visits or inpatient discharges in 1996, respectively. 13.3% of blacks and 12.3% of Hispanics had an ED visit compared to 12.8% of whites (p = 0.45). 7.4% of blacks and 7.7% of Hispanics had an inpatient stay compared to 8.3% of whites (p = 0.39). After controlling for age, sex, marital status, education, income, employment, insurance, perceived health status, and having a usual source of care, Hispanics were significantly less likely to utilize the ED (OR 0.55, CI 0.46 – 0.65)and inpatient services (OR 0.47, CI 0.38 – 0.57) than whites. Similarly, blacks were significantly less likely to utilize the ED (OR 0.59, CI 0.49 – 0.71) and inpatient services (OR 0.43, CI 0.34 – 0.55) than whites.
CONCLUSION: Controlling for covariates, whites appear more likely to utilize ED and inpatient services than blacks or Hispanics, contrary to current assumptions. Current efforts to improve access to care for racial/ethnic minorities focus primarily on the outpatient setting. It may be important to address access to ED and inpatient services as well.

**SOCIOECONOMIC STATUS AND RACIAL/ETHNIC DIFFERENCES IN DIABETES OUTCOMES.** R.S. Stafford[1], K. Choudhry[1], S.B. Laufer[1]; [1]Stanford University, Department of Medicine, Palo Alto, CA *(Tracking ID #51101)*

BACKGROUND: Substantial racial/ethnic differences exist in the occurrence of diabetes mellitus (DM) and in DM complications, but the involved mechanisms are not defined.
METHODS: We used data from the 1997 – 1999 National Health Interview Surveys to assess racial/ethnic and socioeconomic status (SES) differences in the occurrence and outcomes of DM. Of 79,710 respondents over age 29 years, 6,139 (7.7%) self-reported DM occurring after age 29 (a proxy for Type 2 DM). Our outcomes included DM prevalence, DM treatment patterns, and DM-related comorbidities. We evaluated the relationship between these outcomes and race/ethnicity (Hispanics, non-Hispanic whites, Blacks, and others) and, as a measure of SES, educational attainment (less than high school [<HS], high school, some college, BA or more [BA+]). Chi-square tests using effective sample sizes evaluated racial/ethnic differences and trends by education with weighting to reflect national patterns (all findings $p < .001$ unless otherwise noted).
RESULTS: There were substantial racial/ethnic and SES differences in DM occurrence. DM was more prevalent in Blacks (11.7%) and Hispanics (9.8%) compared to whites (7.0%) and in those with <HS education (14.2% vs. 4.2% BA+). Education and race/ethnicity were independently associated with DM prevalence. Blacks were more likely to have DM whether BA+ (8.2% vs. 3.9% for whites) or <HS (20% vs. 14%). Among those with DM, differences in the likelihood of seeing physicians in the last year varied with physician type. Whites and the more highly educated were more likely to see eye doctors (e.g., whites 57% vs. 44% for Hispanics, BA+ 63% vs. 50% for <HS) and medical specialists. General physician visits were more likely for Blacks and whites (compared to Hispanics), but did not vary by education (p = .43). Foot doctor visits were more likely for Blacks and somewhat less likely with increasing education (p = .06). Insulin therapy was more likely for Blacks (40% vs. 29% for whites, 27% for Hispanics) and more likely for <HS (34% vs. 27% for BA+). Oral hypoglycemic therapy was slightly more likely in Hispanics (p = .05), but did not vary by education (p = .33). Both education and race/ethnicity independently affected patterns of physician visits and medication therapy. Diabetes-related comorbidities were consistently more likely in DM patients with less education. The impact of race/ethnicity on DM comorbidities was less marked and more variable. Blacks with DM were more likely to have strokes (p = .014) and hypertension; whites, heart disease; and Hispanics, kidney disease (p = .009).
CONCLUSION: Lower SES and non-white race/ethnicity independently increased the likelihood of DM and of several adverse DM outcomes. While SES differences were more prominent, SES accounted for only a modest portion of the observed race/ethnicity differences. Medical care to non-whites and lower SES persons with DM was generally more intensive, indicating that inferior medical care is not responsible for increased DM-related complications. Differences in DM prevalence explain most of the socioeconomic and racial/ethnic disparities occurring on a population basis.

**RACIAL AND ETHNIC DIFFERENCES IN ALCOHOL-ASSOCIATED AST ELEVATION.** S. Stewart[1]; [1]University at Buffalo, Buffalo, NY *(Tracking ID #51856)*

BACKGROUND: Studies have shown that the likelihood of dying from cirrhosis is greatest in Hispanic Americans, followed by non-Hispanic black Americans, with mortality being the lowest in non-Hispanic white Americans. This is despite evidence that heavy drinking is similar across racial and ethnic groups. Different sensitivities to the hepatotoxic effects of alcohol may explain mortality differences. This study evaluated the odds for AST elevation across categories of alcohol consumption within non-Hispanic white, non-Hispanic black, and Mexican-American populations.
METHODS: Cross-sectional analysis of adults participating in NHANES III. The outcome was the presence of at least a two-fold elevation in serum AST. The exposure was frequency of alcohol consumption in the past 30 days. Adjustment was made for age, gender, body-mass index, Hepatitis B surface antigen positivity, and Hepatitis C antibody positivity. Logistic regression models were constructed for each racial and ethnic group. A fourth model was analyzed to compare the odds for AST elevation among abstainers from each racial/ethnic group.
RESULTS: There were no racial/ethnic differences in the odds of two-fold AST elevation among abstainers. The adjusted odds across categories of alcohol consumption differed between the groups as shown in the table.
CONCLUSION: Differences in the odds for elevation of AST associated with increasing alcohol use mirrors the pattern of cirrhosis mortality in the US population. This suggests that different sensitivities to alcohol-induced hepatotoxicity may contribute to differences in cirrhosis mortality. This may reflect genetic or environmental determinants , or possibly remaining differences in quantities and patterns of alcohol use not accounted for by frequency of consumption. Results require duplication in clinical samples with accurate measurement of the quantity and pattern of alcohol use.

**Odds Ratio and 95% CI for Two-fold AST Elevation**

| Drinking Episodes in Prior 30 Days | Non-Hispanic White | Non-Hispanic Black | Mexican-American |
|---|---|---|---|
| 0 | 1.0 | 1.0 | 1.0 |
| 1 – 9 | 0.3 (0.1,1.2) | 0.9 (0.4,2.1) | 1.3 (0.5,3.5) |
| 10 – 29 | 0.8 (0.3,2.6) | 1.9 (0.7,5.7) | 3.5 (1.8,6.8) |
| 30+ | 1.9 (0.8,4.2) | 2.3 (0.7,7.1) | 8.5 (3.1,23.2) |

**OFFICE-BASED TREATMENT OF OPIOID DEPENDENCE: CLINICAL CHALLENGES AND OPPORTUNITIES FOR GENERALISTS.** L.E. Sullivan[1], P.G. O'Connor[1], R.S. Schottenfeld[1], D.A. Fiellin[1]; [1]Yale University, New Haven, CT *(Tracking ID #51355)*

BACKGROUND: Office-based treatment of opioid dependent patients is a new model that will expand access and broaden the scope of medical care that generalists provide. In order to inform clinicians, educators, and policymakers of the resources necessary for this new treatment model, we sought to determine patient needs, especially those with a history of injection drug use (IDU), presenting for office-based treatment of opioid dependence.
METHODS: We performed a cross-sectional analysis of patients entering a clinical trial of buprenorphine for the treatment of opioid dependence in the primary care center of an urban teaching hospital. We collected self-report data on illicit drug and alcohol use, immunization history, psychosocial status, and comorbidities. In addition, we examined laboratory data including hepatitis serologies and transaminases. Finally, we evaluated these variables in patients with and without a history of injection drug use.
RESULTS: The 98 subjects had a mean age of 38 years (18 – 56) and 75/98 (77%) were male. Ninety-six of 98 (98%) reported past or active heroin use, with 58/96 (60%) reporting injection use, 78/96 (81%) intranasal use, with a mean time from first use of 12 years (1 – 37). Fifty-one of 98 patients (52%) had no prior methadone treatment. Prescription opiate use was found in 39/98 (40%) of patients, while 94/97 (97%) reported cocaine, 78/97 (80%) reported alcohol, and 88/96 (92%) reported tobacco use. Seventy-six of 96 (79%) had been immunized for tetanus within 10 years but only 14/95 (15%) reported hepatitis B vaccination. Complications from opioid dependence were reported in 32/57 (56%) of the IDU subjects vs 20/39 (51%) of the non-IDU subjects (P = 0.07) in the form of depressive and anxiety symptoms, and in 49/57 (86%) of the IDU group vs 24/40 (60%) of the non-IDU group (P < 0.01) in the form of employment problems. Thirteen of 54 (24%) of the IDU subjects reported that they were HCV seropositive vs 0/40 (0%) in the non-IDU group (P = 0.001). The actual HCV serostatus was 34/55 (62%) in the IDU group vs 4/36 (11%) in the non-IDU group having the presence of HCV antibodies (P = 0.001). The mean aspartate aminotransferase was 31 vs. 21 (P = 0.04) and the mean alanine aminotransferase was 42 vs. 18 (P = 0.03) in the IDU and non-IDU groups.
CONCLUSION: While office-based treatment of opioid dependence presents new challenges, it also provides the opportunities to screen for concurrent substance use disorders, offer smoking cessation, improve the rate of HBV immunization, and provide support in the areas of psychiatric and employment counseling. Generalist physicians can play a key role in the identification, treatment, and referral of previously unrecognized HCV disease. Generalists are uniquely positioned and qualified to provide this care, and our findings reinforce that policy and educational efforts need to be directed at involving generalist physicians in the management of opioid dependent patients.

**TREATMENT OF DIFFICULT-TO-CONTROL BLOOD PRESSURE IN A MULTIDISCIPLINARY CLINIC AT A PUBLIC HOSPITAL.** L. Tao[1], E. Whitaker[1], P. Smith[1], E. Edwards[1], P. Hart[1]; [1]Cook County Hospital, Chicago, IL *(Tracking ID #51321)*

BACKGROUND: Hypertension is suboptimally treated, particularly in the African-American community, and rates of cardiovascular morbidity and mortality remain high. Few studies have been conducted to determine strategies for treating poor, inner-city African-American patients. In this study, we attempted to assess the effectiveness of a multidisciplinary clinic in a large, public hospital in treating minority patients with difficult-to-control blood pressure and to determine the most common causes of uncontrolled blood pressure in this setting.
METHODS: A cohort of 50 African-American and Hispanic patients with blood pressures higher than 140/90 while taking at least three anti-hypertensive medications was assembled. A team of physicians, nurse clinicians, pharmacists, and dietitians worked with each patient to establish a treatment plan that addressed both behavior modification and medical therapy. Two physicians proposed a consensus diagnosis for previous treatment failure for each patient; possible etiologies included volume overload, nonadherence, drug interactions, white-coat hypertension, inadequate dosing, obesity, and secondary hypertension. All patients were followed prospectively for a six-month period in which intensive education regarding medications, lifestyle modification, adherence, and home blood pressure monitoring was performed in addition to the usual standard of care for patients with hypertension.
RESULTS: 58% of patients achieved target blood pressure at six months. The most common reasons for previous treatment failure were nonadherence (40%) and volume overload (30%). The most frequently used strategies for controlling blood pressure were increasing the use or dose of diuretics, calcium-channel blockers or alpha-blockers. Patients subjectively judged the following interventions to be the most successful in helping to meet their blood pressure goal: increased frequency of physician visits, care from physicians specializing in the treatment of hypertension, use of different medications, and education about high blood pressure.
CONCLUSION: A multidisciplinary clinic can be useful in the treatment of African-American and Hispanic patients with difficult-to-control high blood pressure. Further study is needed to identify the most successful areas of intervention and to document any impact on both short- and long-term cardiovascular outcomes.

**RACIAL AND ETHNIC DIFFERENCES IN HEALTH SERVICE USE AMONG PATIENTS WITH DIABETES: A COMPARISON ACROSS THREE STATES.** R.B. Vargas[1], R.B. Davis[2], E. Mccarthy[1], L.I. Iezzoni[2]; [1]Beth Israel Deaconess Medical Center, Boston, MA; [2]Harvard University, Boston, MA *(Tracking ID #52224)*

BACKGROUND: Although racial and ethnic minorities have worse outcomes from diabetes, little is known about their service use. We compared racial and ethnic differences in the rates of ambulatory care visits (ACV) and hospitalizations (Hosp) across three states for adults with diabetes enrolled in Medicaid.
METHODS: Using the 1994 – 5 State Medicaid Research Files for California (CA), Georgia (GA), and New Jersey (NJ) we identified patients enrolled ≥3 months in fee-for-service Medicaid, with diagnoses or medications for diabetes, aged 18 – 64, who were not pregnant. We compared patients who self identified as Asian/Pacific Islander (A/PI), black, Hispanic, or white. Persons with unknown race/ethnicity and groups that were <2% of the total study population were excluded. We used a multivariable Poisson regression model to examine the effect of race on ACV and Hosp rates, adjusting for age, sex, reason for Medicaid eligibility, health status, and duration of enrollment.
RESULTS: Of 138,685 patients, 4% were A/PI, 30% were black, 24% were Hispanic, and 42% were white; 73% were women; and mean age was 47 years. As shown in the table below, in NJ, blacks had significantly lower ACV rates and higher hospitalizations than whites; however, the opposite occurred in GA. Hispanics in CA had lower ACV rates and higher hospitalizations than whites while Hispanics in NJ did not. A/PI patients had higher ACV rates and lower hospitalizations compared to whites.
CONCLUSION: Among Medicaid beneficiaries with diabetes, there are significant racial and ethnic differences in ambulatory care visit rates and hospitalization rates. For black and Hispanic patients these discrepancies vary by state. We found an inverse relationship between ambulatory care visit rates and hospitalization rates for most groups. Our results suggest that state level resource and policy differences may impact racial and ethnic differences in service use.

**Fully Adjusted Rate Ratios (95%Ci) White Patients as Reference Group**

| | | California | Georgia | New Jersey |
|---|---|---|---|---|
| Black | ACV | 1.02 (1.00,1.03) | 1.48 (1.40,1.56) | 0.90 (0.86,0.94) |
| | Hosp | 1.18 (1.16,1.21) | 0.81 (0.79,0.84) | 1.15 (1.11,1.20) |
| Hispanic | ACV | 0.88 (0.86,0.90) | – | 1.15 (1.08,1.23) |
| | Hosp | 1.08 (1.05,1.12) | – | 0.97 (0.90,1.05) |
| Asian/PI | ACV | 1.27 (1.23,1.30) | – | – |
| | Hosp | 0.76 (0.71,0.81) | – | – |

**MARKET REFORM AND DISPARITIES IN QUALITY OF CARE.** K. Volpp[1], A.J. Epstein[1]; [1]University of Pennsylvania, Philadelphia, PA *(Tracking ID #52724)*

BACKGROUND: Market-based reforms have been instituted in much of the country and have been shown to reduce the rate of increase in health-care costs. Little is known about the impact on quality of care. The New Jersey Health Care Reform Act 1992 eliminated the state's hospital rate-setting system, significantly reduced subsidies for hospital care for the uninsured, and encouraged price competition and HMO growth. We examined whether the quality of care for white and nonwhite patients with acute myocardial infarction (AMI) was differentially affected by these changes in hospital financing. AMI was chosen because it is a common, high mortality condition for which all patients are hospitalized.
METHODS: Patient discharge data for all 271,076 patients in New Jersey (NJ) and the control state New York (NY) from 1990 to 1996 hospitalized with the primary diagnosis of AMI were obtained. NY was used as a control for intertemporal changes in NJ because it is a large, adjacent state which had no changes in its hospital rate-setting system during this period. Changes in the rate of in-hospital mortality, cardiac catheterization and mechanical revascularization (MR) were assessed in NJ compared to NY from 1992 to 1996 for whites and non-whites.
RESULTS: While AMI mortality decreased by a similar amount for whites (−9.5%) and nonwhites (−10.2%) in New York from 1992 to 1996, in New Jersey AMI mortality decreased by −0.8% for whites and increased by 22.5 percent for nonwhites. In New York, the rate of increase in expensive but beneficial cardiac procedures was similar among whites (MR rate increased from 16.8% to 35.7%) and nonwhites (MR rate increased from 16.8% to 35.8%). However, in New Jersey, the MR rate increased from 23.5% to 39.5% among whites (68.6% increase) but only from 16.9% to 22.0% among nonwhites (a 30% increase).
CONCLUSION: Decreased use of expensive procedures may explain the relative worsening of AMI mortality among nonwhites post-reform in NJ. These results raise concerns about the impact of market-based reforms on the quality of care for more vulnerable population groups.

**PREDICTING CHANGE IN CONTROL OF DIABETES: LONGITUDINAL VS. CROSS-SECTIONAL ASSESSMENTS.** M.G. Weiner[1], J.A. Long[1]; [1]University of Pennsylvania, Philadelphia, PA *(Tracking ID #52044)*

BACKGROUND: While previous studies utilizing cross sectional data collection strategies have shown population-based discrepancies in the incidence and control of diabetes as a function of socioeconomic status and other patient characteristics, the nature of the data collection has not allowed a demonstration of the impact of these factors on an individual's expected change in diabetes control from year to year.
METHODS: We collected the average HBA1c level on all diabetic patients having blood analyzed at a central processing laboratory in 1999 and 2000. We performed a cross sectional analysis of the proportion of patients achieving a good HBA1c level (defined as <8.0%) in 1999 and 2000. To assess the longitudinal changes in diabetes control, HBA1c results were analyzed for patients having at least one assessment in each of the two years. Additional patient characteristics were extracted from an administrative database including age, race, gender, insurance status, Charlson Score and median family income in the patient's census tract. Two logistic regressions were performed using the administrative data as covariates. One addressed the odds of a patient who had a good HBA1c results in 1999 continuing to have a good result in 2000. The second examined the odds of a patient having a poor HBA1c in 1999 also having a poor HBA1c in 2000.
RESULTS: In the cross sectional analysis, of the 8335 patients who had a HBA1c recorded in 1999, 6192 (74.3%) achieved a level of <8.0. Of the 8031 patients who had a HBA1c recorded in 2000, 6054 (75%) achieved a level less than 8.0. In the logistical model of the patients having

a poor HBA1c in 1999, the covariates having the highest adjusted odds ratios (AOR) for continuing to have a poor HBA1c in 2000 were Income (AOR 1.7 CI 1.09 – 2.75 for the poorest third compared to the wealthiest third) and Age (AOR 1.68 CI 1.11 – 2.55 for patients over 75 compared with those between 35 and 49. Accounting for other covariates, African American race was associated with a lower AOR (0.49 CI 0.36 – 0.69) of continuing to have a poor HBA1c. Gender, insurance status and Charlson score did not produce significant trends. Among patients having a good HBA1c in 1999, income was not associated with an increased likelihood of crossing over to a poor HBA1c in 2000 (AOR 0.98 CI 0.66 – 1.47 for the poorest third compared to the highest third). Older age groups were more likely to continue to have a good HBA1c (AOR 2.15 CI 1.37 – 3.40). However, African American race was associated with a significantly lower likelihood of retaining a HBA1c <8.0 (AOR 0.69 CI 0.5 – 0.95).
CONCLUSION: The cross sectional results suggest that the level of diabetes control in the population remained constant. However, the longitudinal analysis illustrates a more dynamic picture of diabetes control. While elderly patients tended to retain their level of good or poor control, low income diabetics were more likely to remain poorly controlled and African Americans were most likely to change from good to poor and from poor to good control. These differences suggest factors associated with healthcare disparity.

**RACIAL DISPARITIES IN CHOLESTEROL MONITORING AND TREATMENT FOR SECONDARY PREVENTION.** L.D. Woodard[1], N.R. Kressin[2], L.A. Petersen[1]; [1]Baylor College of Medicine and Houston VAMC, Houston, TX; [2]Boston University and Bedford VAMC, Bedford, MA *(Tracking ID #51570)*

BACKGROUND: African Americans (AA) have worse coronary heart disease (CHD) outcomes than whites. Lowering cholesterol leads to improved CHD outcomes. Our goal was to determine if racial differences exist in the use of lipid lowering agents (LLA) for secondary prevention of CHD.
METHODS: 1045 AA (22.6%) and white (77.4%) male veterans with established CHD were enrolled at five VAs. Subjects underwent a nuclear imaging study graded as positive for ischemia. Because patient recruitment preceded NCEP Adult Treatment Panel III recommendations, appropriateness for treatment with LLA therapy was based on NCEP Adult Treatment Panel II guidelines. Ideal candidates for treatment were not younger than 35 years old and did not have a diagnosis of dementia, alcohol abuse, cirrhosis, terminal illness, or LLA allergy. Racial differences in the use of LLAs were assessed using chi-square and t-tests. Lipid levels documented within three months prior to or during an inpatient admission following enrollment were included in this analysis.
RESULTS: Whites were more likely than AAs to be older (63.3 years [±9.7] vs. 61.3 years [±11.1]; P = 0.008), married (62.2% vs. 47.9%; P < 0.0001), and have incomes ≥$20,000 (35.2% vs. 29.4%; P = 0.12). There were no differences in education (12.1 years [±2.7] vs. 11.9 years [±2.8]; P = 0.32) or health insurance (64.5% vs. 60.0%; P = 0.21). Whites were more likely than AAs to have a diagnosis of hypercholesterolemia (65.0% vs. 54.8%; P = 0.005). Lipid levels were obtained on 67.0% of veterans. Of these, whites and AAs had similar rates of cholesterol or LDL monitoring (67.6% vs. 64.8%; P = 0.42). There was a trend towards AAs having higher mean LDL values than whites (118.2 mg/dl vs. 112.4 mg/dl; P = 0.13) but there was no significant difference in total cholesterol values (194.0 mg/dl vs. 188.7 mg/dl; P = 0.27). Whites were more likely than AAs to receive treatment with LLAs (59.6% vs. 46.2%; P = 0.0003). Among patients identified as having any form of atherosclerotic disease, including myocardial infarction, positive cardiac catheterization, percutaneous transluminal coronary angioplasty, coronary artery bypass graft surgery, stroke, or peripheral arterial disease, whites were more likely than AAs to receive treatment with LLAs (71.1% vs. 58.2%; P = 0.008). However, in the subset of 491 ideal candidates for LLA therapy, there was no difference between whites and AAs in rates of treatment (99.3% vs. 100%; P = 0.56).
CONCLUSION: Our data suggest that nearly 1/3 of veterans with known CHD do not have lipid levels recently documented. Whites were more likely than AAs to have a diagnosis of hypercholesterolemia and be treated with LLAs, despite a trend towards AAs having higher mean LDL levels. Mean total cholesterol levels did not differ between the groups. We found no disparities in cholesterol monitoring and treatment of ideal candidates.

**SEX AND RACIAL DISPARITIES IN POST-AMI PROCEDURES AND MORTALITY.** A.C. Yacht[1], C.E. Chaisson[2], K.M. Freund[1], L. Bramwell[3], A.S. Ash[1]; [1]Boston University School of Medicine, Boston, MA; [2]Boston University School of Public Health, Boston, MA; [3]Centers for Medicare and Medicaid Services, Baltimore, MD *(Tracking ID #51633)*

BACKGROUND: Studies from the 1980s and early 1990s show that women have worse survival than men after acute myocardial infarction (AMI). In Medicare populations this difference is largely explained by older age. Similarly, blacks are less likely than whites to undergo catheterization and revascularization, and women are less likely than men. Objective: To determine whether these disparities in procedure and mortality outcomes persist among more recent Medicare beneficiaries with AMI.
METHODS: Using Medicare fee-for-service administrative files, we compared rates of cardiac catheterization and revascularization (angioplasty or surgical bypass) within 90 days and mortality 1 year after an AMI admission among 298,078 1999 Medicare beneficiaries (50% female; 89% white; 7% black) stratifying by sex and race. We also adjusted these comparisons for age, individual comorbidities, and overall comorbidity.
RESULTS: Crude rates of cardiac catheterization were 15% for white women, 18% for white men, 12% for black women, and 14% for black men. Analogous revascularization rates were 13%, 18%, 10%, and 12%. 1-year mortality rates for these groups were 37%, 32%, 39%, and 33%. Risk-adjusted catheterization and mortality odds ratios (ORs) differed by race but not by sex, while revascularization ORs were higher for men than women and for whites than blacks.
CONCLUSION: Although sex and racial disparities have been reported for decades, following admission for AMI in 1999, blacks in the Medicare population were less likely to receive cardiac catheterization or revascularization and more likely to die within 1 year than whites. Despite higher rates of post-AMI revascularization, white men were as likely to die as white women.

**Adjusted Odds Ratios (95% Confidence Intervals)**

| | Catheterization | Revascularization | 1-year Mortality |
|---|---|---|---|
| White women | 1.00 (ref) | 1.00 (ref) | 1.00 (ref) |
| White men | 1.01 (0.99, 1.03) | 1.13 (1.11, 1.16) | 0.99 (0.98, 1.01) |
| Black women | 0.71 (0.67, 0.75) | 0.67 (0.63, 0.72) | 1.09 (1.04, 1.13) |
| Black men | 0.67 (0.63, 0.72) | 0.70 (0.65, 0.75) | 1.09 (1.03, 1.14) |

**PRACTICE STRUCTURE OF WOMEN'S HEALTH CARE SERVICES IN VA MEDICAL CENTERS.** E. Yano[1], C. Goldzweig[2], D. Washington[2], C. Caffrey[1], L. Altman[2], B. Simon[1], I. Canelo[1]; [1]VA Greater Los Angeles HSR&D Center of Excellence, Sepulveda, CA; [2]VA Greater Los Angeles Healthcare System, Los Angeles, CA *(Tracking ID #52451)*

BACKGROUND: Congressional eligibility reforms have profoundly changed the array of services to be made available to women veterans in all Department of Veterans Affairs (VA) health care facilities. These include not only primary and specialty care services already afforded VA users, but also a full spectrum of gender-specific services, including prenatal, obstetric and infertility services never before provided in VA settings. The implications of this legislative mandate are poorly understood, especially since no information has been available on how care is currently structured.
METHODS: We surveyed senior women's health clinicians at VAs serving 400 or more women veterans (82% response rate, n = 136). We adapted questions from the NIH Women's Health Centers of Excellence evaluation and previous VA surveys to assess practice structure (clinic organization, services available, privacy arrangements, clinic hours). Univariate and bivariate analyses were conducted to assess national and regional variations.
RESULTS: Overall, 46% of VAs have one or more designated women's health providers in primary care (48% one, 9% one/team, 31% full team). While the majority of care for women veterans is in primary care, 54% also have separate women's health clinics (WHCs), where they principally provide gender-specific services (e.g., reproductive health, osteoporosis management); women are more likely to see same-gender providers with more privacy (i.e., exclusive use of exam and waiting rooms). Gynecology clinics exist in 58% of VAs, separate from WHCs, and focus on surgical specialty care. Mental health is provided principally in integrated mental health (MH) clinics, with 43% having one or more designated women's health providers. Only 11% have specialized women's MH clinics. Greater separation of services is more common in primary care than for mental health services.
CONCLUSION: VA facilities have adopted complex health care delivery arrangements for women veterans, which may reflect eclectic local variations more than purposeful practice structures. Reducing women veterans' health disparities will require innovative care models and referral networks to achieve equitable, high quality care for this extreme minority.

## ETHICS/HUMANITIES/HISTORY OF MEDICINE

**A NATIONAL SURVEY OF PHYSICIANS' PREPAREDNESS AND DUTY TO TREAT IN RESPONSE TO POTENTIAL BIOTERROR EVENTS.** G.C. Alexander[1], M.K. Wynia[2]; [1]University of Chicago Robert Wood Johnson Clinical Scholars Program, Chicago, IL; [2]Institute for Ethics at the AMA, Chicago, IL *(Tracking ID #51517)*

BACKGROUND: Infectious epidemics can challenge physicians to balance obligations to care for patients with their own interest in avoiding communicable diseases. Recent events have raised the profile of this challenge and added concerns about physicians' overall preparedness to deal with a bioterror attack.
METHODS: We conducted a confidential, national random sample mail survey of 1000 physicians to assess their: 1) sense of preparedness for a bioterror attack; and 2) perceived duty to treat patients in the event of an infectious epidemic.
RESULTS: Based on an analysis of the first wave of respondents (two weeks of receipts in December 2001, n = 192), a minority of physicians agreed that they or their primary site of clinical practice was "well prepared" for a bioterror event (23% and 26%, respectively), and only 29% reported learning "a substantial amount about physicians' roles in responding to bioterror" since September 11th. Still, in the event of "an outbreak of an unknown but potentially deadly illness," nearly all respondents (86%) reported they would continue to care for patients. Most (67%) believe that "physicians have an obligation to care for patients in epidemics, even if doing so endangers the physicians' health"; and though 20% were unsure of this obligation, only 13% did not believe it to exist. Nearly one-half (46%) of respondents agreed with the even stronger statement that they would "be willing to put myself at risk of contracting a deadly illness if it was the only way to save others' lives." Of the remaining respondents, 32% were unsure and 22% reported that they would not take such a risk.
CONCLUSION: Despite a low proportion of physicians reporting that they are well prepared for a bioterror event, most nevertheless affirm a professional duty to treat patients during epidemics and many would do so even at risk to their own lives.

**THE PREVALENCE OF PHYSICIAN PARTICIPATION IN PHARMACEUTICAL-SPONSORED ACTIVITIES.** B.H. Ashar[1], R.G. Miller[1], K.J. Getz[1], N.R. Powe[1]; [1]Johns Hopkins University, Baltimore, MD *(Tracking ID #51590)*

BACKGROUND: Due to a number of factors, many clinicians have experienced a decline in their income over the past decade. To compensate for this decline, some physicians have chosen to supplement their income through associations with pharmaceutical companies. This has raised ethical concerns over potential conflicts of interest related to patient care. The purpose of this study is to qualify and quantify the extent of participation in such activities. Specifically, we examined physician involvement in conducting pharmaceutical-sponsored clinical trials and lectures.
METHODS: We conducted a cross-sectional mailed survey of 1000 Maryland members of the American College of Physicians to determine the prevalence of participation in pharmaceutical-associated activities. Members were sampled sequentially with a random start. The survey consisted of 24 items designed to collect information on demographics, practice patterns, income variables, and participation in clinical trials and/or lectures sponsored by pharmaceutical companies. We used Chi-square analysis to determine whether relationships existed between personal and professional characteristics and these activities.
RESULTS: After three mailings, our response rate was 54%. Thirty-seven percent of physicians surveyed reported involvement in pharmaceutical company activities. Of these, 27% conducted clinical trials sponsored by a pharmaceutical company, 22% gave lectures for a company, and 12% performed both. There was no difference in age or years since medical school graduation between those who participated in pharmaceutical activities and those that did not. There was a significant association between participation in pharmaceutical company lectures or trials and male gender ($p < .05$), lower annual income ($p < .05$), specialty practice ($p < .001$), lower income satisfaction ($p < .001$), and intent to remain in current practice in five years ($p < .05$).
CONCLUSION: Physician participation in pharmaceutical-sponsored activities is pervasive, perhaps reflecting an increase in financial pressures caused by decreasing reimbursements and managed care limitations. Controversy surrounding the potential influence of financial incentives on the physician-patient relationship clearly exists. The ultimate impact of these activities on the practice of clinical medicine and research ethics requires further study.

**Participation in Pharmaceutical Activities**

| Pharmaceutical-Sponsored Activity | Participation |
|---|---|
| Conducting clinical trials | 22% |
| Giving lectures | 27% |
| Either lectures or trials | 37% |

**WHAT DO PHYSICIANS TELL PATIENTS ABOUT THEMSELVES? A QUALITATIVE ANALYSIS OF PHYSICIAN SELF-DISCLOSURE.** M.C. Beach[1], D. Roter[1], R.M. Frankel[2], W. Levinson[3], D.E. Ford[1]; [1]Johns Hopkins University, Baltimore, MD; [2]University of Rochester, Rochester, NY; [3]University of Chicago, Chicago, IL *(Tracking ID #51964)*

BACKGROUND: Physician self-disclosure (PSD) has been alternatively described as a boundary violation or as a way of fostering trust and rapport in the patient-physician relationship. We qualitatively analyzed a series of physician self-disclosure statements to inform the current controversy.
METHODS: We used an database of 1265 audiotaped patient-physician encounters collected in 1993 to compare communication styles of physicians with and without a history of malpractice claims. The audiotapes were coded for PSD using the Roter Interaction Analysis System (RIAS). In RIAS, PSD is defined as "statements that describe the physicians' personal experience in areas that have medical and/or emotional relevance to the patient." We identified and transcribed all instances of PSD from audiotapes. Three investigators independently read all the PSD statements and developed a coding scheme. Two investigators then separately coded all statements and resolved disagreement through consensus.
RESULTS: PSD occurred in 195/1265 (15.4%) office visits. Because some physicians disclosed more than once per visit, there were 242 PSD statements for analysis. PSD statements generally fell into the following categories: reassurance/ plausibility (n = 71), counseling (n = 60), rapport building (n = 55), intimate (n = 14), self-preoccupied (n = 11) or dismissive (n = 10). Reassurance/ plausibility disclosures indicated that the physician has had the same experience (either taken the same medication, undergone the same test or procedure, or had the same illness or symptom) as the patient ("I've used quite a bit of that myself"). Counseling disclosures informed the patient about the physicians' experience in a manner meant to guide action ("I just got one and it works pretty well — I think it's a good idea to wear a knee brace when you ski"). Rapport-building statements were either humorous anecdotes or legitimating of the patients' emotion ("They usually give you something to relax 'cause I know I'd be nervous"). Intimate self-disclosures refer to private revelations ("I cried a lot with my divorce, too"), self-preoccupied self-disclosures were extremely long or irrelevant to the patient's concerns, and dismissive disclosures may have invalidated the patient's concern ("Mine was much worse").
CONCLUSION: Physician self-disclosure refers to a complex and varied communication behavior that ought not be considered one entity. Self-disclosing statements that are self-preoccupied or intimate rarely occur. When debating whether physicians ought to reveal personal experiences to patients, it seems reasonable to be more explicit about the types of statements physicians should or should not make.

**PHYSICIAN CONCEPTIONS OF LOYALTY TO PATIENTS AND SOCIAL JUSTICE IN HEALTHCARE: RELATIONSHIP TO PROFESSIONAL SATISFACTION UNDER MANAGED CARE.** M.C. Beach[1], L. Meredith[2], J. Halpern[3], K.B. Wells[4], D.E. Ford[1]; [1]Johns Hopkins University, Baltimore, MD; [2]RAND, Santa Monica, CA; [3]University of California, Berkely, CA; [4]UCLA School of Medicine, Los Angeles, CA *(Tracking ID #51978)*

BACKGROUND: Physicians conceptions of loyalty to individual patients and of social justice, in terms of all persons having access to equal healthcare, may be shifting under managed care but there have been no empirical data. We describe physician conceptions of patient loyalty and social justice and explore whether these values are associated with type of managed care practice and professional satisfaction.
METHODS: We mailed a survey to 500 primary care providers, from 80 outpatient clinics, in 11 managed care organizations (MCOs) participating in four studies designed to improve the quality of depression care in primary care. We measured the individual-patient ethic by an item asking respondents to indicate their level of agreement with the statement "The clinician's main responsibility is to each individual patient rather than to society" and we measured attitudes towards justice with 3 items that were combined in a scale of commitment to egalitarian ideals (alpha 0.60).
RESULTS: We received 414 responses (response rate 83%). 28% of physicians strongly endorsed the individual-patient ethic and 18% strongly agreed that it is the responsibility of society to provide everyone with the best available healthcare. Physicians who strongly endorsed the individual-patient ethic were older (43% PCPs >50 years, 26% PCPs 36–50 years, and 21% PCPs <35 years, $p = 0.009$), spent more time in direct patient care (36 vs. 32 hours/week, $p = 0.048$) and were more likely to practice in network rather than staff-model MCOs (33% vs. 24%, $p = 0.077$). Scores on a scale measuring egalitarian conceptions of justice were similar for physicians regardless of whether or not they endorsed the individual-patient ethic. Compared to physicians who did not endorse the individual-patient ethic, physicians with the individual-patient ethic were more likely to be very satisfied with their ability to provide good quality patient care (38% vs. 19%, $p = 0.000$). Controlling for physician and practice characteristics, physicians with the individual-patient ethic and physicians with higher scores on an egalitarian scale were more likely to be very satisfied overall with their practices (AOR 2.23, 95% CI 1.11–4.49 and AOR 1.18, 95% CI 1.09–1.29, respectively).
CONCLUSION: Physicians who strongly endorse the individual-patient ethic are older and less likely to practice in staff-model MCOs. Stronger commitment to an egalitarian healthcare system and strong endorsement of the individual-patient ethic are independently associated with greater practice satisfaction among physicians. The impact of these values on patient care should be a priority for future research and the subject of professional education and debate.

**DO INCENTIVES MATTER? PROVIDING BENEFITS TO FAMILIES OF ORGAN DONORS.** P.A. Ubel[1], C.L. Bryce[2], R.M. Arnold[2], L. Smirnoff[3], A. Caplan[4]; [1]University of Michigan, Ann Arbor, MI; [2]University of Pittsburgh Medical Center, Pittsburgh, PA; [3]Case Western Reserve University, Cleveland, OH; [4]University of Pennsylvania, Philadelphia, PA *(Tracking ID #52382)*

BACKGROUND: Due to the persistent need for donor organs, financial incentive programs that would provide compensation of some type to families who consent and donate a loved one's organs are of substantial interest to policymakers, ethicists, and the transplant community at large. Few data exist as to the acceptability of these programs. The purpose of this study is to measure public opinion regarding the use of financial incentives and to assess whether opinion varies according to the type and amount of incentive.
METHODS: We administered a telephone survey to Pennsylvania households and considered five potential types of incentives that might be offered to donor families: payment of funeral expenses, medical expenses, travel/lodging expenses, charitable contributions, and direct payments. To test for ethnic variations, we oversampled from communities with a large proportion of African-American households. We collected baseline data on socioeconomic status, general opinion regarding organ donation and transplantation, and personal experience with organ donors, candidates, and recipients.
RESULTS: A total of 971 individuals completed the survey, a consent rate of 69.3%. Respondents generally supported the use of benefits to encourage organ donation, with the greatest support for medical expenses (84.2%) and the weakest support for direct payments (53.2%). Level of support did not vary by race except for dire pay, where the support was greater among African-Americans (65% vs 46%, $p < 0.001$). Most respondents did not believe that benefits would affect their own willingness to give consent on behalf of a relative. They did believe, however, that such programs would influence others, especially low-income groups. Among those who supported such programs, the median value of benefits deemed appropriate was $1000.
CONCLUSION: Overall, respondents favored benefits more closely tied to donor death (medical or funeral expenses) and supported substantial levels of compensation. They were less favorable in terms of charitable contributions and direct payments. This suggests that the term "financial incentive" is too broad and that some benefits may be acceptable, although the true impact cannot be assessed in the absence of empirical evidence.

**ETHICAL DILEMMAS AS PERCEIVED BY THIRD-YEAR MEDICAL STUDENTS.** C.V. Caldicott[1], K. Faber-Langendoen[1]; [1]SUNY Upstate Medical University, Syracuse, NY *(Tracking ID #50349)*

BACKGROUND: For a required bioethics class, medical students write papers that analyze ethical issues arising during clinical clerkships. The kinds of cases students bring appear to differ from those in standard bioethics texts and curricula. This study examines the nature of ethical conflict as reported by third-year medical students, so that educational initiatives for students and faculty might better address potentially unmet areas.
METHODS: To develop a typology of students' ethical issues, we analyzed the cases for content. A checklist of ethical issues was derived from sources in the literature and refined by the research team. Each case was categorized by the ethical issues identified by its student author, and results were tabulated.
RESULTS: From July 1999 to June 2001, 210 students submitted 460 cases representing all required clerkships in approximate proportion to the length of time spent on the clerkship. The most commonly occurring ethical issues concerned decisions about treatment (n = 199 [44%]). Within this category, conflicts between the patient/family and the physician (i.e., one party insists while the other refuses) (n = 69) and unsatisfactory informed consent (n = 25) occurred most often. Ethical issues arising in communication were second in frequency (n = 92), and included deliberate lies or deceptions to patients/families (n = 35) and inadequate communication with them (n = 28). The third most frequent ethical topic was injustice (n = 50), particularly regarding discriminatory treatment of patients based on their characteristics such as socioeconomic status, self-induced illness and prisoner status.

CONCLUSION: While many of the issues presented by students fit well into existing bioethics curricula, others, such as discriminatory treatment of patients based on personal characteristics, are not typically emphasized in national educational objectives, standard curricula, or textbooks. This and other frequently encountered areas in the student cases should be emphasized explicitly in future bioethics classes and presented to faculty as opportunities for demonstrating appropriate patient-centered care.

**KNOWLEDGE ABOUT PROSTATE CANCER SCREENING WITH PROSTATE SPECIFIC ANTIGEN BY ETHNICITY AND PRACTICE SITE.** E.C. Chan[1], F.T. O'Donnell[2], M.C. Haynes[2], D.W. Aga[3], A.J. Greisinger[3], S.W. Vernon[2]; [1]Division of General Internal Medicine, The University of Texas-Houston Medical School, Houston, TX; [2]Center for Health Promotion and Prevention Research, The University of Texas-Houston School of Public Health, Houston, TX; [3]Kelsey-Seybold Clinic, Kelsey Research Foundation, Houston, TX *(Tracking ID #52057)*

BACKGROUND: Because it is unclear whether regular screening with prostate specific antigen (PSA) will reduce mortality from prostate cancer, screening with it is controversial. Informed consent is recommended. The purpose of this study was to determine how knowledgeable men are about screening with PSA and whether there are differences by ethnicity or practice site.
METHODS: Using a survey based upon key facts about prostate cancer screening with PSA that experts and couples with screened and unscreened men believe men ought to know, we surveyed 304 men age 50 and older completing a periodic health maintenance examination at a university (n = 152) and managed care (n = 152) internal medicine practice (overall response rate, 60%). Based on responses to the survey items, we computed a knowledge score for each participant. Using chi-square analyses, we determined whether knowledge was associated with practice site, ethnicity, income or education.
RESULTS: There were 61% Caucasians, 28% African Americans, and 11% other ethnicities. Men at both practices had similar demographic characteristics. Although 77% had heard about a PSA test, 40% of all respondents knew fewer than half the facts, and 93% believed that regular screening with PSA will lower mortality from prostate cancer. Only 35% knew that false positive, and 32% knew that false negative, PSA test results can occur. Although 67% had had testing before, only 37% said that a physician had discussed the risks and benefits of PSA testing. African American were significantly less knowledgeable than Caucasians. Compared to Caucasians, fewer African American men had ever heard of a PSA test (85% vs. 63%, $P < 0.001$) or were aware that it is a blood test for prostate cancer (93% vs. 70%, $P < 0.001$). Knowledge was positively associated with income and education. There were no differences in knowledge by practice site.
CONCLUSION: Despite professional recommendations for informed consent for PSA testing, knowledge about it is poor. Although African Americans are at higher risk for prostate cancer, they are less knowledgeable about it compared to Caucasians. Educational efforts to improve informed decision making should inform men that it is not clear whether regular screening with PSA reduces mortality from prostate cancer.

**THE ETHICAL PROBLEM OF FALSE POSITIVES: A PROSPECTIVE COMPARISON OF STANDARDIZED PATIENTS AND THE MEDICAL RECORD.** T.R. Dresselhaus[1], J. Luck[2], J.W. Peabody[3]; [1]University of California, San Diego, San Diego, CA; [2]University of California, Los Angeles, School of Public Health, Los Angeles, CA; [3]University of California, San Francisco, San Francisco, CA *(Tracking ID #50580)*

BACKGROUND: Payers and institutions use chart abstraction to measure physician performance, despite its underestimation of the quality of care due to recording bias. We wondered if the medical record might also overestimate the quality of care through false, and potentially unethical, documentation by providers. To determine this, we compare the quality of care as documented in the medical record with the reports of actor patients.
METHODS: Twenty physicians in the primary care clinics of two VA Medical Centers were randomly selected among consenting residents and faculty (97% agreed to participate). We compared 2 methods for measuring the quality of care for 4 common outpatient conditions: (1) structured reports by standardized patients (SPs) who presented unannounced to the physicians' clinic, and (2) abstraction of the medical records generated during these visits. Physician subjects completed 160 evaluations of SPs (8 cases $\times$ 20 physicians). To determine the false positive rate (FPR), physician entries were classified as false positive (documented in the record but no reported by the standardized patient), false negative, true positive, and true negative. A receiver-operator characteristic (ROC) curve was generated to compare physician subjects' false positive rates (1 - specificity) and true positive rates (sensitivity). We also determined the FPR according to domain (history, physical exam, diagnosis, treatment), physician subjects, actor patients, study site, and medical condition.
RESULTS: Compared to the gold standard of standardized patients, false positives were identified in the medical record for 6.4% of measured items overall. The FPR was higher for physical examination (0.330) and diagnosis (0.304) than for history (0.166) and treatment (0.082). For individual physician subjects, the FPR ranged from 0.098 to 0.397 and, for actor patients, from 0.06 to 0.396. Typical of a ROC curve, the FPR rose in a curvilinear, positive relationship to the TPR. The FPR was similar across study sites and conditions.
CONCLUSION: These results suggest that the medical record falsely overestimates the quality of important dimensions of care such as physical examination. This clustering suggests that these are not incidental occurrences or under-reporting by actor patients. Though it is unlikely that most subjects regularly or intentionally falsified the record, we cannot exclude the possibility that false positives were in some instances intentional, and therefore fraudulent, misrepresentations. Such fabrication would violate ethical standards essential to the integrity of clinical practice and propagate misinformation in the medical record.

**THE DYING WILL.** J.H. Farber[1], N.J. Farber[2]; [1]Yale University, New Haven, CT; [2]Christiana Care Health System, Wilmington, DE *(Tracking ID #50674)*

BACKGROUND: The current procedures for procuring tissues and organs for donation have resulted in both organ and tissue shortages and general dissatisfaction with the current system.
METHODS: We reviewed and analyzed current research and opinions on upholding the wishes of patients regarding the treatment of the body after death. This included a review of the literature regarding advance directives, organ and tissue donation, and burial preferences.
RESULTS: It has been shown that for psychological health, individuals need to believe that they can decide what will happen to their bodies after their deaths. Many proposed systems for the procurement of organs and tissues for donation, including both presumed consent and the requirement of familial consent, directly or indirectly deprive the individual of control over the fate of his or her body after death. In addition, the fears caused by misconceptions regarding organ donation leads otherwise willing people to refuse to donate their or their relatives' organs.
CONCLUSION: In order to improve the current system of organ and tissue procurement, we propose the concept of the "Dying Will," a legal document in which an individual may delineate his or her wishes regarding organ and tissue donation, funeral procedures, and the like. In order to alleviate the fears of the individual, perhaps physicians could be responsible for helping their patients to write their dying wills. This might increase the number of individuals willing to donate their organs or tissues. In addition, with such a system, the permission of family members would be unnecessary for organ donation. This could further increase the number of available donors and prevent family members from overriding the wishes of the deceased. To expedite the transferral of dying will information to medical personnel, computerized databases such as the one recently initiated by Medic Alert could be used.

**CAN TUSKEEGEE HAPPEN AGAIN? A SURVEY OF PHYSICIANS ABOUT LACK OF CONSENT IN RESEARCH TRIALS.** N.J. Farber[1], J. Castellano[1], B.M. Aboff[1], M. Dejoseph[1], J.L. Weiner[2], E.G. Boyer[3]; [1]Christiana Care Health System, Wilmington, DE; [2]Drexel University, Philadelphia, PA; [3]St. Joseph's University, Philadelphia, PA *(Tracking ID #50249)*

BACKGROUND: Despite clear ethical and federal guidelines to the contrary, there have been several instances of clinical trials which enroll patients who did not give informed consent or who were of a vulnerable population. We surveyed physicians on their attitudes about entering such patients into clinical trials.
METHODS: A survey instrument asked physicians about whether 10 hypothetical patients, who could not give informed consent due to cognitive deficits or who were of a vulnerable population, could be enrolled in phase I clinical trials, based on a four point Likert scale. The association of demographic variables with the number of scenarios viewed as completely or somewhat acceptable was analyzed via student's T tests or ANOVA as applicable. All significant ($p < 0.01$) variables were entered into a multiple logistic regression model.
RESULTS: Of the 961 surveys which were received by subjects, 400 (42%) were completed and returned. Many of the physicians (23%–65%, varying with the particular scenario) completely or somewhat approved of entering the patients of the 10 scenarios into clinical trials; 84% indicated that at least one of the case scenarios was acceptable. Physicians who had performed clinical trials viewed fewer of the scenarios as acceptable ($p = 0.006$), while having served in the military ($p = 0.036$) and approving of the death penalty ($p < 0.001$) were associated with a larger number of approved scenarios. However, a majority of all subgroups including those who conduct clinical trials and who sit on institutional review boards (IRBs) approved of at least one case scenario.
CONCLUSION: Physicians approved of the entry of at least some patients who cannot give informed consent or who are of a vulnerable population into clinical trials, despite both ethical and federal guidelines to the contrary. Training in these issues was not associated with physicians' decisions. More effective education on the ethical and federal guidelines involving clinical research should be available to practicing physicians, residents and medical students. There should also be assurance that physicians who conduct clinical trials or who sit on IRBs have the requisite knowledge about the ethics of clinical research.

**WHEN THE PATIENT IS NOT A PATIENT.** N.J. Farber[1], J.H. Farber[2], B.M. Aboff[3], E.B. Davis[4], J.L. Weiner[5], E.G. Boyer[6], P.A. Ubel[7]; [1]Christiana Care Health System, Wilmington, DE; [2]Yale University, New Haven, CT; [3]Christiana Care Health System, Hockessin, DE; [4]George Washington University, Washington, DC; [5]Drexel University, Philadelphia, PA; [6]St. Joseph's University, Philadelphia, PA; [7]University of Michigan, Ann Arbor, MI *(Tracking ID #50680)*

BACKGROUND: Physicians may occasionally encounter an ethical dilemma about whether to protect the rights of an individual patient, versus acting in the interests of the society. When physicians act on the behest of the society, in such cases as the impaired airline pilot, it is usually on the basis of a legal imperative or clearly stated normative guidelines. However, there may be cases where no such guidelines exist, or in those in which physicians act to help society despite professional values to the contrary. We examine these situations.
METHODS: We have conducted several studies in which physicians were asked about hypothetical dilemmas involving the potential for harm to the society, but in which there are no clear guidelines, or in which guidelines state that physicians should not act in behest of the society due to harm to the individual. These cases involve the report of a past crime by the patient, the issue of patient-initiated health insurance fraud, and the issue of physician involvement in lethal injection for capital punishment. We also conducted a literature review on this subject.
RESULTS: A number of physicians in each of these studies would be willing to act on behalf of society and against the individual patient despite no clear normative values or those actually contrary to the physicians' decisions. When analyzed for the factors being most likely to influence the respondents, duty to society and the values of the overall population were most associated with the decision to act on behalf of society rather than in the interest of the individual patient.
CONCLUSION: In some settings, a number of physicians are willing to act in the behalf of society rather than on behalf of the patient. In such circumstances, physicians rely on their personal and societal values, rather on those promulgated within the medical profession. Some of these decisions may actually be harmful to the patient, and therefore contrary to ethical guidelines established by the medical profession. The impact of societal values on physician decision making needs further exploration.

**MEDICAL RESEARCH AND THE POPULAR PRESS: A REVIEW OF REPORTS ON MEDICAL RESEARCH IN FOUR NATIONAL NEWSPAPERS.** 
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BACKGROUND: Previous research demonstrates that the media is influential in the dissemination of medical research to the public and to medical professionals, however, there is tremendous debate regarding the accuracy of this coverage.
METHODS: The objectives of this study were as follows: 1. To evaluate newspaper reports of medical research with reference to the type of research reported, the prominence of the newspaper reports, the publication status of reported studies, and the quality of the reporting. 2. To compare the American and Canadian press with respect to the above characteristics. A retrospective review of four national newspapers (the Globe and Mail, the National Post, the New York Times and the Washington Post) was completed. All articles located in the first section of the newspaper that reported medical research results and were published during a pre-specified six-month-period were reviewed. The quality of clinical research reporting was assessed using a previously validated scale (Oxman Index, 1993). To test the scale's reliability in the current study, 10% of the data set was independently rated by two raters.
RESULTS: Three-hundred and nineteen newspaper reports were retrieved (198 American and 121 Canadian). A majority of newspaper reports were based on published data (82%). The most frequently cited journal was the New England Journal of Medicine (21%). Clinical research was more frequently reported than basic science research (70% vs. 29%). Compared to American newspapers, Canadian newspapers were more likely to report basic science research ($p < 0.001$) and to feature medical research on the front page ($p < 0.01$). Chance corrected agreement (kappa) between two raters, for overall scientific quality of clinical research reporting using the Oxman Index was 0.59 (CI 0.40 – 0.78). Preliminary data suggests that newspaper articles frequently do not report the statistical precision of research results. Overall, medical research reporting is of moderate quality.
CONCLUSION: Clinical research is more frequently reported in newspapers than is basic science research, however this emphasis is less pronounced in the Canadian press. In addition, medical research tends to receive greater prominence in the Canadian press than in the American. Finally, although the media has a significant impact on healthcare consumers and professionals, medical research reporting is of only moderate quality. Attempts should be made to improve the quality of reporting.

**THE PHYSICIAN'S DUTY TO TREAT IN EPIDEMIC OR BIOTERROR SITUATIONS.** 
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BACKGROUND: Recent events raise anew the possibility of epidemic disease in contemporary society. Whether caused naturally or by an act of terrorism, such epidemics can place physicians in situations of being asked to treat patients while incurring some personal risk, known or unknown. Current ethical standards lack a positive statement of a physician's duty to treat infectious disease in such situations.
METHODS: Historical review and discussion.
RESULTS: Evidence from the European Plagues and from Yellow Fever and Smallpox outbreaks in the United States provide inconsistent historical precedents. William Boghurst in 1666 and Benjamin Rush in 1793 each articulated individual responsibilities to treat patients, but neither presented a collective or general responsibility. This individual duty, based on gentlemanly honor, persisted until the organization and professionalization of medicine with the advent of the AMA's first code of ethics in 1847. The Code represented a social contract for all medical professionals, which bound them to work to alleviate suffering in epidemics "even at the jeopardy of their own lives." After nearly 100 years, this collective duty was dissipated in 1957 with changes in the Code affirming physicians' freedom to choose their patients stemming from 1) the decline of infectious disease, 2) historically distant memories of epidemics, 3) concerns about the corporate practice of medicine.
The advent of HIV/AIDS in the 1980s brought a new challenge to a profession grown complacent in the safer age of antibiotics. The need for treatment conflicted with the physician's "right to choose whom to serve." But this conflict was resolved using limited arguments about risk estimation and non-discrimination, which may not apply to future epidemics.
CONCLUSION: Both historical precedent and current professional codes of ethics lack a clear statement of physicians' obligation to incur risks in caring for patients in epidemics. The social contract, the core virtues of medicine and current pressures all demand a reconsideration and rearticulation of this professional duty to society.

**TERMINAL SEDATION: CONCEPTUAL CLARIFICATIONS AND MORAL CONTROVERSIES.** 
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BACKGROUND: Recently, a number of writers have recommended "terminal sedation" combined with "refusal of hydration and nutrition" as morally acceptable and relatively uncontroversial treatment options for patients suffering at the end of life. However, not all writers have used these terms to refer to the same practices nor have they suggested them for the same indications.
METHODS: We clarify the differing ways these terms have been used in the literature, and make ethical arguments based upon logical and linguistic analysis, standard bioethical principles, and case examples.
RESULTS: We distinguish between one set of cases covered by these terms that we call "Sedation in the Imminently Dying" (SID) and another set that we call "Sedation to Death" (STD). By SID we mean those cases in which patients with refractory symptoms are very near death and a specific therapy is directed at the relief of those symptoms despite an unintended, forseeable, dose-dependent side-effect of sedation that is allowed to come to pass, and in which death ensues. By STD we mean those cases in which the patient may not be imminently dying but has refractory suffering for which there may be no specific therapy but for whom sedation is the intended means of relieving that suffering, and the patient is sedated and death ensues. We argue that while SID may be relatively morally uncontroversial, STD is conceptually indistinguishable from euthanasia and is thus highly morally controversial. We argue further that the rule of double effect best accounts for the differences between SID and STD. We agree that artificial hydration and nutrition may be withheld from patients undergoing SID as "disproportionate." We then make a further distinction between two types of suffering at the end of life. "Neuro-cognitive suffering" (e.g., pain, delirium, and depression) refers to suffering that is directly caused by pathophysiological states. "Agent-narrative suffering" (e.g., alienation, despair, lack of control) refers to suffering that is caused by the agent's reflection upon the meaning of a pathophysiological state with respect to the patient's life history and sense of agency. We provide counter-arguments, drawn from Hans Jonas, about why this distinction is no form of dualism. We argue that SID is relatively morally uncontroversial only in cases of neurocognitive suffering, but that the use of terminal sedation for agent-narrative suffering appears to violate the standard canons of therapeutic responsiveness in medicine. Thus, we argue, the burden of proof rests with those who support agent-narrative suffering as an indication for terminal sedation to establish that this practice should become part of standard medical care.
CONCLUSION: The point of making these distinctions is not to argue for or against euthanasia or assisted suicide. Rather, the point is to clarify which end-of-life practices really are relatively morally uncontroversial and to distinguish those that require further debate and discussion among physicians, nurses, ethicists, and society at large.

**DRAWING ETHICAL LINES IN END-OF-LIFE CARE: CHARACTERISTICS OF INTERNISTS WHO SUPPORT TERMINAL SEDATION BUT OPPOSE PHYSICIAN-ASSISTED SUICIDE.** 
L.C. Kaldjian[1], J.F. Jekel[2], J.L. Bernene[3], G.E. Rosenthal[1], M. Vaughn-Sarrazin[1], T.P. Duffy[4]; [1]University of Iowa, Iowa City, IA; [2]Griffin Hospital, Derby, CT; [3]ACP-ASIM, New Britain, CT; [4]Yale University, New Haven, CT *(Tracking ID #51518)*

BACKGROUND: Though terminal sedation (TS) — diminishing consciousness to halt the experience of intractable pain in terminal illness — is an established and legal form of palliative care, it has been burdened by ethical debate regarding whether its goal is comfort, death, or both. Little empirical data exists regarding physician attitudes toward this practice. We analyzed data from a survey of internists about end-of-life care to characterize physicians who agree with the practice of TS and determine whether those who support TS also support physician-assisted suicide (PAS).
METHODS: A self-administered, anonymous questionnaire was mailed in February 1999 and completed by 677 Connecticut members of the American College of Physicians-American Society of Internal Medicine in order to measure physicians' attitudes toward aggressive palliative care and PAS.
RESULTS: Respondents had a mean age of 51 years and 20% were women. 78% of physicians agreed that TS is ethically appropriate, 32% agreed that PAS is ethically appropriate in some circumstances, and 28% favored the legalization of PAS. Of those who agreed with the practice of TS, 39% considered PAS ethically appropriate and 36% favored its legalization. Physicians who reported caring for more than 10 terminally ill patients in the preceding year were more likely to agree with TS (87% vs. 80%, $P = 0.04$) but less likely to agree with PAS (26% vs. 38%, $P = 0.005$). Those physicians who agreed with TS were more likely to disagree with PAS if they considered themselves skilled in terminal care (52% vs. 29%, $P < 0.0001$), reported caring for more than 10 terminally ill patients in the preceding year (58% vs. 39%, $P < 0.001$), reported a Christian affiliation (Catholic 68%, other Christian 59%, Jewish 37%, no affiliation 28%, $P < 0.0001$), or attended religious services at least monthly (68% vs. 32%, $P < 0.0001$).
CONCLUSION: Support for TS was widespread in this population of physicians. But most of the physicians who agreed with TS did not agree with PAS, and their opposition to PAS was associated with greater experience caring for terminally ill patients, Christian affiliation, and more frequent religious service attendance. These data suggest that in end-of-life care a majority of physicians may make a distinction between those practices that intend comfort (eg, TS) versus those that also intend death (eg, PAS). The ethical principle of "double effect" signals this distinction and, by these results, appears to merit the attention it continues to receive.

**AGGRESSIVE PALLIATION AND PHYSICIAN-ASSISTED SUICIDE: DO HOUSE OFFICERS AND ESTABLISHED PHYSICIANS THINK ALIKE?** 
LC. Kaldjian[1], J.F. Jekel[2], J.L. Bernene[3], B. Wu[4], A. Thomas-Geevarghese[5], J.N. Kirkpatrick[5], M. Vaughn-Sarrazin[1], T.P. Duffy[5]; [1]University of Iowa, Iowa City, IA; [2]Griffin Hospital, Derby, CT; [3]ACP-ASIM, New Britain, CT; [4]Hospital of St. Raphael, New Haven, CT; [5]Yale University, New Haven, CT *(Tracking ID #51542)*

BACKGROUND: Ethical challenges posed by aggressive forms of palliative care, and the controversy surrounding physician-assisted suicide (PAS), have received significant professional discussion. It is not clear how these discussions may be influencing the educational milieu of residency training programs, especially since little is known about attitudes toward these issues among house officers. In order to understand house officer attitudes, and compare these with the corresponding attitudes of physicians beyond training, we examined data gathered from two independent surveys that employed identical questions about palliative care and PAS.
METHODS: Data from a self-administered, mailed questionnaire completed in 1999 by 677 Connecticut members of the American College of Physicians-American Society of Internal Medicine (ACP) were compared with data gathered from a self-administered, hand-delivered questionnaire completed in 2000 by 234 house officers in 3 internal medicine residency programs in Connecticut in order to compare attitudes toward palliative care and PAS.
RESULTS: The mean age of the ACP members was 51 years and 20% were women; the mean of age of the house officers was 29 years and 46% were women. Compared with ACP members, house officers were less likely to agree with aggressive analgesia in terminal illness if it might unintentionally hasten death (87% vs. 97%, $P < 0.0001$) and less likely to agree with terminal sedation for refractory pain in terminal illness (70% vs. 82%, $P < 0.0001$). Though house officers were more likely to believe that PAS is ethically appropriate in some circumstances

(37% vs. 34%) and favor its legalization (35% vs. 30%), these differences were not statistically significant; however, house officers were less likely to believe that PAS, if legalized, would be open to abuse despite regulation (65% vs. 74%, P = 0.01) or would pose risks to vulnerable populations (40% vs. 53%, P = 0.001), or that it violates the physician's role as healer (34% vs. 47%, P = 0.0008).
CONCLUSION: House officers and established physicians showed only modest differences in their attitudes toward aggressive palliation and PAS, suggesting that factors that determine attitudes toward these issues in end-of-life care are common to both populations. Even so, the finding that house officers are somewhat less supportive of aggressive palliation in terminal illness than their senior colleagues, and somewhat less concerned about risks associated with legalizing PAS, raises the possibility that some house officers may benefit from further training in aggressive forms of palliative care and from additional opportunities to consider the societal implications of legalizing PAS.

**WHEN SHOULD PATIENTS BE PROTECTED FROM QUALITY IMPROVEMENT INITIATIVES; A SURVEY OF QUALITY OFFICERS, IRB CHAIRS AND JOURNAL EDITORS.** P.K. Lindenauer[1], E.M. Benjamin[1], J. Fitzgerald[2], D. Naglieri-Prescod[2], P. Pekow[3]; [1]Tufts University and Baystate Medical Center, Springfield, MA; [2]Baystate Medical Center, Springfield, MA; [3]University of Massachusetts, Amherst, MA *(Tracking ID #52274)*

BACKGROUND: Increasingly, healthcare organizations have embraced quality improvement techniques to remedy well documented lapses in quality and patient safety. In this context there has been growing concern over whether and when quality improvement activities require Institutional Review Board (IRB) review and informed consent. We sought to determine whether quality officers, IRB chairs and journal editors share similar views regarding the role of IRB review and informed consent in quality improvement.
METHODS: A survey consisting of 6 quality improvement scenarios detailing the development, implementation and evaluation of a clinical practice guideline for the management of patients with acute myocardial infarction was mailed to all medical directors of quality and institutional review board chairpersons at hospitals of > 400 beds that are members of the Council of Teaching Hospitals (CoTH) of the Association of American Medical Colleges (AAMC). The same survey was mailed to the editors of all US journals that appear on Abridged Index Medicus (AIM). Each scenario shared several common features : that the guideline was developed by the American College of Cardiology and was adapted for local use by a committee of staff physicians, that the implementation process would include mailings, order sets and monthly presentations, and that the goal of the initiative was to increase the use of proven therapies such as aspirin and beta blockers. Scenarios varied in terms of the intensity of evaluation efforts (none versus chart review and/or patient phone calls), the use of control months to differentiate secular trends from real improvements in care, and the intent to publish.
RESULTS: The overall response rate was 53% and did not vary across surveyed groups. Quality officers were significantly less likely than IRB chairs to believe that IRB review was required for all but one of the scenarios. For example, in scenarios where chart review or patient phone calls were used to evaluate the impact of the guideline 23% and 47% of IRB chairs felt that IRB review was required as compared to 3% and 20% of quality officers (p = .001 for each comparison). Among the subset of repsondents who felt that IRB review was required there were similar, but less striking differences in the perceived need for informed consent. Agreement between the quality officers and IRB chairs within the same institution was poor, with kappas consistently close to zero.
CONCLUSION: In light of the pressing need to improve quality while protecting the rights of patients, efforts should be supported to clarify the role of the IRB in quality improvement activities.

**GRADY MEMORIAL HOSPITAL: HER STORY, A STORY OF SEGREGATION.** J. Messler[1], R. Parker[1], D.W. Brady[1]; [1]Emory University, Decatur, GA *(Tracking ID #52125)*

BACKGROUND: Grady Memorial Hospital in Atlanta, Georgia, reflects the history of the South within its walls. Atlanta's public hospital, Grady grew from one segregated building in 1892, to two, separate black and white hospitals throughout the early 20th century. By the mid-20th century, Grady again was a single, but segregated hospital, finally desegregating in 1965.
METHODS: The material for this report was obtained through a literature review of specific articles on Grady's history, as well as literature on racism and segregation in the South. Additionally, we interviewed physicians and employees who have worked at Grady over the past 50 years, and spoke with patients who have sought care there during the same time period.
RESULTS: Atlanta's indigent population has been cared for at Grady for over 100 years. Segregation and racial unrest characterized the South following the civil war, including the early 20th century South of Jim Crow laws and subsequent separate racial societies. Segregation prevailed throughout Grady Hospital's infrastructure, including its cafeterias, clinics, emergency rooms, charts and ambulances. From 1892 to the early 1920s, Grady was a small segregated hospital in downtown Atlanta. Beginning in the early 1920s until 1958, Grady existed as two hospitals. The white hospital stood bold and bright, across the street from the black hospital, described as overrun with roaches and rats. In 1958, a new Grady, a massive 1100 bed hospital, arose in downtown Atlanta, appearing as a giant H. The mirror image of the "H" separated black from white patients, each occupying a different side, right within its walls. Segregation continued at Grady until 1965, melting together soon after the passage of the 1964 Civil Rights Act. Grady's history lives today within her patients. One patient recalls the segregated days as times when "just about anybody would cuss you out." Another patient somberly notes, " it was just the times we lived in, and we just accepted it, we sung our way through it, and we lived through it."
CONCLUSION: The story of Grady parallels the mores of the times. The segregation that permeated the South from the late 19th century until the mid-1960s also affected the South's health care system, including Atlanta's, as reflected in the history of Grady Hospital.

**JUDGING THE ACCEPTABILITY OF ENDING A PATIENT'S LIFE.** M.T. Muñoz Sastre[1], S. Frileux[1], C. LelièVre[2], E. Mullet[2], P.C. Sorum[3]; [1]Université du Mirail, Toulouse, Haute-Garonne, France; [2]Ecole Pratique des Hautes Etudes, Toulouse, Haute-Garonne, France; [3]Albany Medical College, Latham, NY *(Tracking ID #50813)*

BACKGROUND: The acceptability of ending a patient's life is under debate in Europe as well as in the United States. Our objective was to discover what factors affect the judgments of French lay people of the acceptability of euthanasia and physician-assisted suicide and how these factors interact.
METHODS: A convenience sample of 66 young adults, 62 middle-aged adults, and 66 elderly persons living in western France rated the acceptability of either euthanasia or physician-assisted suicide for 72 patient scenarios with a five-factor design: patient's age × curability of illness × degree of suffering × patient's mental status × extent of patient's requests for the procedure (3 × 2 × 2 × 2 × 3). Main effects and interactions among patient factors and participants' characteristics were investigated by means of both graphs and ANOVA.
RESULTS: Patient requests were the most potent determinant of acceptability. Euthanasia was generally less acceptable than physician-assisted suicide, but this difference disappeared when requests were repetitive. As their own age increased, participants placed more weight on patient age as a criterion of acceptability.
CONCLUSION: In France, people's judgments concur with the requirement in proposed legislation that patients' requests for a life-ending act be repeated. Younger people, who frequently are decision makers for elderly relatives, place less emphasis on patient's age itself than do older people.

**A CONTROLLED TRIAL OF OUTPATIENT END OF LIFE CARE—ADVANCE CARE PLANNING.** M.W. Rabow[1], S.L. Dibble[1], S.Z. Pantilat[1], S.J. Mcphee[1]; [1]University of California, San Francisco, San Francisco, CA *(Tracking ID #52039)*

BACKGROUND: Outpatients with terminal or serious chronic illness who are nearing the end of life may continue to pursue cure or aggressive management of their disease but still may benefit from advance care planning (ACP). In a controlled trial, we evaluated the efficacy of a palliative medicine consultation team to help such patients with ACP.
METHODS: Patients in 2 separate but similar modules of a university-based primary care outpatient clinic were assigned to intervention and control arms. In one module, 50 patients with severe CHF, COPD, or cancer received services and consultations from the team (experimentals), and in the other module, 40 received usual primary care (controls). Three times during the study year, we administered a survey to assess patient completion of several ACP items: a durable power of attorney for health care (DPOA-HC) form, funeral plans, plans for distribution of personal possessions, and desired place of death. To evaluate the intervention effect, we compared outcome differences between experimental and control groups. Data were analyzed using descriptive and non-parametric statistics.
RESULTS: The patient population (n = 90) was elderly (mean age 68.6 years), female (64%), low income (71%), and multi-ethnic (53% Caucasian, 18% African American, 10% Latino, 8% Asian, and 11% other). Except for gender, there were no significant differences in functional status, sociodemographic, or disease severity measures at baseline between the experimental and control groups. At baseline, 39% of the sample had advanced directives and there was no significant difference between the groups. Among patients without an advance directive at baseline, at post-intervention 54% of those in the experimental group and 28% in the control group had completed a DPOA-HC form (p < 0.09). At baseline, most (78%) of patients had not made funeral arrangement and there was no significant difference between the groups. Post-intervention, among those who began the study without funeral arrangements, 35% of the experimental group and 5% of the control group (p = .02) had made those arrangements. At baseline, half (50%) of the patients had made plans for their possessions, with no significant differences between the groups. Post-intervention, among those with no initial plans for their possessions, 80% of the experimental group and 46% of the control group (p < .06) had made those plans. At baseline, 64% of patients wanted to die at home. This increased to 71% by study end, with no significant difference between experimental and control groups.
CONCLUSION: Consultations and services by a palliative medicine team to outpatients with cancer, CHF and COPD can improve ACP with regard funeral plans. There is the suggestion that such a team may lead to improved completion of DPOA-HC forms and plans for distribution of possessions as well.

**HOW DO RESIDENTS DISCUSS FUTILE MEDICAL TREATMENT WITH FAMILIES?** M. Rhodes[1], C.H. Griffith[1], J.F. Wilson[1]; [1]University of Kentucky, Lexington, KY *(Tracking ID #51502)*

BACKGROUND: Although many guidelines and opinions have been published on how physicians should approach the topic of futile care in end-of-life discussions with patient and families, little is known of how physicians actually conduct these conversations. The purpose of this project was to observe and describe how resident physicians broach the topic of futility with a patient's family member.
METHODS: Thirty-four internal medicine residents agreed to be videotaped in a clinical encounter with a standardized patient "to assess communication in a challenging scenario". Residents were given a description of the medical condition of a patient, which was judged by several independent reviewers as a futile situation. The patient is post-bone marrow transplant, on the ventilator with CMV pneumonia and now ARDS for a week, with two chest tubes, a pO2 of 46 on 100% Fi02 and PEEP 25, systolic blood pressure of 70 on 3 vasopressors, necrosing digits, and needing 20 units of blood products over the last 5 days. BUN is now 80, creatinine 5.0, K+ 7.2, with no urine output, and dialysis would be the next step. The resident is to imagine his or herself as the new resident on the ICU rotation, and to discuss the patient's condition and decisions of care with the standardized patient/spouse. Videotapes were viewed by two independent reviewers and a coding scheme developed for different aspects of the discussion, with the coding scheme analyzed with qualitative approaches for recurring themes.

RESULTS: Residents generally approached the discussion in two fashions: 1) directly describing each deteriorating organ system as a prelude to discussion of futility (15 resident's approach); or 2) asking the spouse's understanding of the patient's condition, and leading them to conclude further care was futile (19 resident's approach). About 2/3 of the residents framed the discussion in gentler words: "relieve suffering" "go peacefully", etc. The other 1/3 used more frightening terminology to emphasize futility: "painful procedure" "risky dialysis", description of tubes, etc. In 11 of the encounters (37%) the decision was reached not to pursue dialysis; the others were left with the spouse having more time to think or meet with a pastor. Interestingly, issues of CPR or resuscitation were brought up in only 4 encounters, with the residents making the implicit assumption that no dialysis meant no CPR.
CONCLUSION: Residents approach futility discussions in different fashions, with a patient-centered focus couched in gentler terms seemingly the more reassuring and "successful". Understanding how residents approach futility discussions would be important to guide instructional efforts in how to discuss futility.

**SOURCES OF CONFLICT: CRITICAL EVENTS IN THE MORAL AND PROFESSIONAL DEVELOPMENT OF INTERNAL MEDICINE RESIDENTS.** J.R. Rosenbaum[1], E.H. Bradley[1], E.S. Holmboe[1], M.H. Farrell[1], H.M. Krumholz[1]; [1]Yale University, New Haven, CT *(Tracking ID #51967)*

BACKGROUND: Medical educators have increased their emphasis on teaching medical ethics and professionalism. Despite curricular improvements, little is known about residents' experiences that may affect the development of ethical norms and behavior. The purpose of this study is to identify categories of problematic situations encountered by medical residents that may have an impact on their moral and professional development.
METHODS: Using qualitative methods, we randomly selected residents from the Yale traditional and primary care internal medicine residency programs during their ambulatory or elective rotations over six months. We conducted in-depth, open-ended interviews using a standardized discussion guide. The interviewer asked residents to discuss experiences involving patients or colleagues that made them uncomfortable. Standardized probes were used to elicit additional episodes that residents considered unethical or unprofessional. The sessions were taped and transcribed, and themes were extracted according to grounded theory methods.
RESULTS: All of the residents (n = 31) recounted events that made them uncomfortable or that they considered unethical or unprofessional, with most recalling multiple events. The majority of the situations were categorized in terms of conflict and involved interactions with peers (e.g., failure of appropriate supervision or workload distribution), attending physicians (e.g., conflict over treatment appropriateness or prognostication), and patients and families (e.g., disagreements over disclosure or quality of life). Conflict also involved self-assessment, including a failure to live up to one's standards and concerns over one's own competence. The residents reported substantial emotional and psychological sequelae resulting from these events, including guilt, anger, and embarrassment, and noted that few programmatic supports were available for addressing such events.
CONCLUSION: Residents commonly experience conflicts with peers, faculty, and patients that were reported to cause substantial distress. We defined categories of conflict that may have an impact on the moral and professional development of future physicians.

**THE FLEXNER REPORT: STILL RELEVANT IN THE 21ST CENTURY?** S.K. Penland[1], K.J. Smith[2], M.S. Roberts[2]; [1]Mercy Hospital of Pittsburgh, Pittsburgh, PA; [2]University of Pittsburgh, Pittsburgh, PA *(Tracking ID #49511)*

BACKGROUND: Can the Flexner Report, written in the early 20th century, be relevant today? Medicine in Flexner's time was at an important crossroads—increasing knowledge, no unified standard of training, and changing professional expectations for its practitioners. With a variety of pressures being placed upon it, many would argue that medicine today is at a similar juncture.
METHODS: We reviewed the Flexner Report (available through the Carnegie Foundation web site), comparing issues it raised to contemporary data and commentary on medical education, practice, and manpower in the medical literature.
RESULTS: According to the ABIM, recent competitive, economic, and regulatory stresses had "a negative impact on the professional behavior of physicians", leading to ongoing attempts to ensure that physicians "maintain patient interest above physician self interest". This echoes the Flexner Report's call for "that sort of regard for the honor of the profession and that sense of responsibility for its efficiency which will enable a member of that profession to rise above the consideration of personal or of professional gain... Perhaps in no other of the great professions does one find greater discrepancies between the ideals of those who represent it."
Overproduction and overcrowding within the medical profession juxtaposed with significant areas of physician shortage were serious problems Flexner addressed, paralleling today's controversies over physician distribution and specialist oversupply even as the number of nonphysician providers steadily increases. Flexner stated "it is clear that even long-continued over-production of cheaply made doctors cannot force distribution beyond a well marked point. A superfluous doctor is usually a poor doctor... the inferior medium tends to displace the superior."
The Flexner Report asks, "what safeguards may society and the law throw about admission to a profession like that of law or of medicine in order that a sufficient number of men may be included to enter it and yet the unfit and the undesirable may be excluded?" This is particularly apt today, after years of significant decreases in medical school applicants.
Inappropriate variation in contemporary practice has been documented repeatedly, with medical error, the extreme of variation in care, causing an estimated 44,000 deaths/yr. Flexner noted that a scientifically trained physician "keeps his advantage over the empiric. He studies the actual situation with keener attention; he is freer of prejudiced prepossession, he is more conscious of liability to error."
CONCLUSION: The Flexner Report is not a dry, archaic tome, but instead is lucid, well crafted, engaging, and surprisingly vital—full of observations, criticisms, and reparative suggestions to a medical community that are remarkably applicable today. It deserves to be read and now easily can be via Internet.

**EVALUATING THE QUALITY OF INFORMED CONSENT.** J. Sugarman[1], P.W. Lavori[2], M. Boeger[2], C. Cain[1], P. Nisco[2], A. Busette[2], B. Edson[2]; [1]Duke University, Durham, NC; [2]Palo Alto VA, CSPCC, Menlo Park, CA *(Tracking ID #51720)*

BACKGROUND: Although informed consent is a critical means of protecting the rights and interests of participants in clinical research, effective and efficient means of evaluating the quality of informed consent do not exist, yet having such means will be important to monitoring consent and for testing interventions designed to improve the consent process. Consequently, we developed and tested the Brief Informed Consent Evaluation Protocol (BICEP), a short telephone-based assessment of informed consent.
METHODS: BICEP was developed using items from previous empirical examinations that cohered with the dominant conceptual model for the informed consent process. "Parent" clinical trials were recruited from the portfolio of active trials within the VA Cooperative Studies Program. As soon as patient-participants completed the informed consent process for a parent trial, phone contact was made with a BICEP interviewer at a central phone bank.
RESULTS: 440 participants completed BICEP, representing 6 parent studies from 13 VA medical centers across the country. Site coordinators reported that all enrolled patients were willing to participate in BICEP, 98% had no difficulty with the process, and 96% had no interruption of clinic flow. Completing all necessary BICEP procedures required an average of 14.3 minutes (SD 11.1) for site coordinators and 10.7 minutes (SD 9.4) for participants. The average duration of BICEP itself was 8.0 minutes. Overall the evaluation of the informed consent process was positive: 95% reported receiving just the right amount of information; 99% remember signing a consent form; 99% felt no pressure to consent; and 93% were completely satisfied. Verbatim responses to the item "What is the primary purpose of [parent study]?" were then coded regarding whether the respondent indicated that the study addressed a research purpose or benefited others. Overall kappa statisitc for 3 coders was .738 (SE .105), with 20% not mentioning that the study has a research purpose and 20% not mentioning the study benefits others.
CONCLUSION: The BICEP is an efficient means of evaluating informed consent that is acceptable to research participants and research personnel. Further coding of verbatim responses should suggest means of improving the BICEP. Once this is completed, the BICEP will find use in future intervention studies designed to improve the informed consent process in actual clinical trials.

**FACTORS ASSOCIATED WITH THE QUALITY OF CARE PLANS FOR PATIENTS WITH DO NOT RESUSCITATE ORDERS.** D.P. Sulmasy[1], J.R. Sood[1], W.A. Ury[1]; [1]New York Medical College & St. Vincent's Manhattan, New York, NY *(Tracking ID #51116)*

BACKGROUND: Patients with Do Not Resuscitate (DNR) orders often have unclear care plans that do not define limits on treatment besides cardiopulmonary resuscitation and fail to address other patient needs. In this study, we examined the factors associated with more comprehensive and explicit care plans for patients with DNR orders.
METHODS: A previously validated and reliable ($\kappa$ = .77 to .85) chart review technique called Concurrent Care Concerns (CCCs) was used to measure whether 11 possible patient care needs had been addressed for 189 consecutive medical inpatients with DNR orders at two teaching hospitals. The CCC items studied included explicit consideration of further limits on life-sustaining treatments, such as intubation, blood products, or artificial nutrition, and whether other patient concerns such as analgesia, spiritual support, or hospice care had been explicitly addressed within 2 days of the DNR order. We reviewed charts for DNR documentation, CCCs, clinical and sociodemographic factors, and examined associations between CCCs and patient and staff characteristics.
RESULTS: Fourty-seven percent of cases were from Hospital A, where a housestaff teaching program about CCCs had been in place for four years, and 53% were from Hospital B, where no such education was in place. Patients averaged 72 years of age, 62% were women, 61% white, and they had a mean APACHE III physiology score of 33.8. The most frequent diagnoses were malignancy (28%), cardiac (19%), pulmonary (13%) and HIV (12%). Six percent had a primary diagnosis of dementia. Housestaff or students wrote 66% of the DNR orders and 30% had no attending co-signature. Reasons for the order were documented in only 55% of cases, and a consent conversation was documented in only 69%. At least one CCC was documented in 67% of cases. The mean total CCCs per DNR order was 1.55 (1.84 at Hospital A vs. 1.29 at Hospital B, P = .007). The most frequent individual CCC addressed was intubation (42%), and the least frequent was consideration of a change in vital sign frequency (1%). In a multivariate logistic regression analysis of low ($\leq$1) vs. high ($\geq$2) CCCs, patients with malignancy (P = .002), higher APACHE scores (P = .007), a documented consent conversation (P = .009), and those at hospital A (P = .005) were more likely to have high attention to CCCs. Demented patients were least likely to have high attention to CCCs.
CONCLUSION: Documention of consent conversations and care plans for patients with DNR orders are less than ideal. Diagnosis, severity of illness, hospital culture, and the presence or absence of a formal consent conversation about resuscitation are associated with CCCs. It is not surprising that CCCs are greater for patients who are more severely ill, but disparities among diagnoses and lack of attention to CCCs for patients without consent conversations are of concern. That greater attention to CCCs was observed where this subject was explicitly taught suggests, but does not establish, that care plans for DNR patients might be improved through housestaff education.

**MAJORITY OF DYING PATIENTS CARED FOR BY GENERALISTS.** S.W. Tolle[1], S.E. Hickman[1], V.P. Tilden[1]; [1]Oregon Health & Science University, Portland, OR *(Tracking ID #51637)*

BACKGROUND: The percentage of specialist physicians tripled between 1950 and 1990. National data indicate that in 1995, only 35% of all physicians were generalists. Generalists are less likely than specialists to use diagnostic tests, procedures, and longer hospital stays in

treating patients. The impact of these patterns on the aggressiveness of treatment at the end of life is unclear. We wondered what role generalists play in these trends in Oregon, a leading state in family-centered and palliative care for the dying. Specifically, we speculated that generalists might be over-represented in comparison to specialists in caring for Oregon patients at the time of death.
METHODS: The sample consisted of 504 randomly selected Oregon death certificates for adults who died from natural causes between January and June 2001. The name of the physician who signed each death certificate was recorded and public records were used to identify the physician's self-reported practice specialty. The signature on the death certificate was used as a marker for serving as the attending physician at the time of death.
RESULTS: The majority of death certificates n = 368 (73%) were signed by physicians who self-identified as generalists (internal medicine, family practice, or general practice) with no other subspecialty noted. Of all the decedents, just under half n = 228 (45%) were cared for by general internal medicine physicians, n = 135 (27%) by FPs, and n = 5 (1%) by GPs. The other n = 136 (27%) physicians identified themselves as having a subspecialty or primary specialty. The most commonly reported specialties were hem/onc n = 33 (7%), surgery n = 22 (4%), and geriatrics n = 19 (4%).
CONCLUSION: As evidenced by signatures on the death certificates, generalists serve as the attending physician for the majority of dying Oregonians. Thus, generalists are over-represented in comparison to specialists in caring for Oregonians at the end of life. In this role, they may guide the use of treatments and procedures at life's end. Detailed studies of Medicare enrollees by hospital referral region indicate that Oregonians are less likely to die in a hospital or ICU and have fewer visits to specialists in the last six months of life than patients in most other states. The association between the higher rates of generalists serving as the attending at the time of death and the low acuity and aggressiveness of treatment at the end of life is intriguing and bears further investigation.

**DO CURRENT INTERACTIONS BETWEEN THE PHARMACEUTICAL INDUSTRY AND PHYSICIANS VIOLATE THE AMA GUIDELINES ON ETHICAL BEHAVIOR?** M. Gomez[1], P. Lurie[2], L. Bradley-Baker[2], G. Ruby[2], S.M. Wolfe[2]; [1]Johns Hopkins University, Baltimore, MD; [2]Public Citizen, Washington, DC *(Tracking ID #51740)*

BACKGROUND: $18 billion was spent by the pharmaceutical industry in 2001 to market its products, including gifts to physicians. We sought to describe current pharmaceutical company gifts to physicians and to assess their compliance with the voluntary American Medical Association (AMA) Opinions ("Ethical Opinions") on ethical behavior.
METHODS: Using a network of 234 physicians in the U.S. (55% internists), we collected gifts, inducements and other items they had received from the pharmaceutical industry over a 6-month period. We 1) categorized these items according to type and 2) assessed them for compliance with 5 AMA Ethical Opinions, particularly "Gifts to Physicians from Industry."
RESULTS: Sixty-two members of the network responded (27%). Of 389 items received from the network of physicians, the most common categories were "CME course invitations" (24%), "invitation to be the subject of research" (11%), and "meal with lecture" (10%). Gifts ranged from dinners to golf games to tickets for art museums to invitations to sit on pharmaceutical company advisory committees. Ninety-six items (25%) mentioned a specific offer of cash or its equivalent, ranging in value from $1 to $2000 (median = mode = $100). Twenty-two items (6%) included invitations for family members or gifts specifically intended for family members. Sixty-two items (16%), if accepted by physicians, would violate the AMA Ethical Opinions; 58 of these (94%) violated "Gifts to Physicians from Industry."
CONCLUSION: Current interactions between the pharmaceutical industry and physicians frequently do not comply with the AMA Ethical Opinions. New trends in marketing, such as the use of focus groups, advisory groups and the Internet, were identified. Because the AMA Ethical Opinions are too weak, compliance is voluntary and enforcement essentially non-existent, these Opinions are unlikely to be sufficient to reduce inappropriate pharmaceutical company-physician interactions.

**INVASIVE PROCEDURES: DOING BUT NOT DOCUMENTING CONSENT.** J.R. Zebrack[1], R.M. Wang-Cheng[1]; [1]Medical College of Wisconsin, Milwaukee, WI *(Tracking ID #51445)*

BACKGROUND: Obtaining and documenting consent for procedures is an essential element of good patient care, but also has many other benefits, such as quality assurance, reimbursement, and credentialing. The purpose of this study was to assess compliance with documentation of procedure consent and post-procedure notes.
METHODS: At a 529-bed, Western region, university-affiliated county hospital, charts involving lumbar punctures (LPs) or central lines (CLs) performed during 1999 were pulled for review. They were screened for documentation of consent, either by completed consent form (hospital policy) or progress note. Post-procedure notes were reviewed for presence and content.
RESULTS: See Table 1. Of the sixty-two procedures reviewed, half (48%) had no documentation of consent. Consent forms were completed for only 44% of the procedures. Only four (15%) of the CLs had consent documentation, two of which had completed consent forms. Of the procedures performed without documented consent, four (15%) of the CLs but none of the LPs were noted in the chart to be emergent. One-fifth (22%) of the patients who had LPs and 19% of the patients who had CLs died during their admission, but none a result of the procedure performed. One-third (32%) of all procedures were performed by internists or internal medicine subspecialists. The majority (94%) of procedures were performed by attendings of various specialties, while only 6% were performed by housestaff.
CONCLUSION: Half (48%) of the procedures performed had no documentation of consent. Physicians were more likely to document consent for LPs than for CLs ($p < 0.01$). Although acuity of illness may have contributed to this difference with regard to the emergent CLs, we have no explanation for the remaining CLs. Whether or not physician or patient perceptions of risk play a role in this disparity needs to be further studied. On-going education regarding the medical-legal importance of consent and a standard format for post-procedure notes may improve physician compliance with documentation.

**Table 1. Consent and Procedure Documentation**

| | Consent Documented | Consent Form Completed | Post-Procedure Note Present |
|---|---|---|---|
| LPs (n = 36) | 28(78%) | 25(69%) | 33(92%) |
| CLs (n = 26) | 4(15%) | 2(8%) | 19(73%) |
| Total (n = 62) | 32(52%) | 27(44%) | 52(84%) |

# GERIATRICS

**A RANDOMIZED CONTROLLED TRIAL OF A CHINESE HERBAL REMEDY TO INCREASE ENERGY, MEMORY, SEXUAL FUNCTION, AND QUALITY OF LIFE IN ELDERLY ADULTS IN BEIJING, CHINA.** S.W. Bent[1], L. Xu[2], L. Lui[1], M. Nevitt[1], E. Schneider[3], G. Tian[2], S. Guo[2], S.R. Cummings[1]; [1]University of California, San Francisco, San Francisco, CA; [2]Peking Union Medical College, Beijing, China; [3]University of California, Los Angeles, Los Angeles, CA *(Tracking ID #52389)*

BACKGROUND: Chinese herbal medicines are commonly used to improve general health and well-being despite limited scientific evidence to support this practice. We sought to determine if an herbal remedy widely used in China (Longevity Treasure) results in changes in quality of life, energy, memory, sexual function, or qi.
METHODS: This double-blind, randomized, placebo-controlled trial took place at Peking Union Medical College in Beijing, China from October 2000 to April 2001. 237 community residents >60 years of age with self-reported decreased energy, memory, or sexual function were randomly assigned to treatment with four tablets of Longevity Treasure three times a day or an identical placebo. The primary outcome measure was defined as change in quality of life as measured by the SF-12 Mental and Physical Component Summary scales.
RESULTS: Use of Longevity Treasure resulted in small but statistically significant improvements in mental health. Patients in the Longevity Treasure group had a 1.9 point greater improvement on the SF-12 Mental Component Summary scale (95% CI, 0.1 to 3.6) and a similar improvement on the SF-36 mental health subscale. No improvements were found in a variety of other measures of general health and well-being, including physical performance tests, memory tests, sexual function questionnaires, and a scale of qi. Longevity Treasure was safe and well tolerated.
CONCLUSION: Short-term use of a mixture of Chinese herbs resulted in small improvements in mental health, but no change in energy, memory, sexual function, or qi. Further study is needed to determine if greater effects may be seen with longer treatment.

**ACUTE CARE FOR ELDERS (ACE) UNITS: IS IT POSSIBLE TO TARGET BY REASON FOR ADMISSION?** A.B. Buttar[1], A.J. Perkins[1], R.M. Palmer[2], S.R. Counsell[1]; [1]Indiana University Center for Aging Research, Indianapolis, IN; *(Tracking ID #51110)*[2]The Cleveland Clinic Foundation, Cleveland, OH *(Tracking ID #51110)*

BACKGROUND: Acute Care for Elders (ACE) units in hospitals prevent functional decline among patients but bed availability is often limited. Objective: To identify criteria for targeting a subgroup of patients most likely to benefit from ACE as defined by prevention of Activities of Daily Living (ADL)decline from baseline to discharge (D/C).
METHODS: Secondary data analysis of a randomized trial of ACE unit in a community hospital including 1531 community-dwelling patients >70 yrs old admitted between 11/94 – 5/97; 767 were randomized to ACE and 764 to usual care. We analyzed the difference between ACE and usual care in ADL decline from baseline (2 wks before admission) to D/C by reason for admission. Data were analyzed by chi-square test of association and logistic regression. Dependent variable was ADL decline from baseline to D/C. We controlled for age, gender, living alone, Charlson comorbidity score, and APACHE II.
RESULTS: For the overall sample ACE compared to usual care lowered the percent of patients with ADL decline from baseline to D/C; 30% vs. 35%, p = 0.05. Compared to usual care, ACE patients having as the reason for admission a cardiovascular diagnosis, pulmonary diagnosis, UTI, or dehydration had a significantly lower percntage of ADL decline (ACE 23% vs. usual care 36%, p = 0.001). By logistic regression the adjusted Odds Ratio for the overall sample was 0.73, 95% CI 0.60 – 0.94. After adjusting for covariates, ACE intervention decreased the odds of ADL decline for patients with pulmonary diagnoses, OR 0.53 (0.3, 0.91), cardiovascular diagnoses, OR 0.37 (0.16, 0.88), UTI, OR 0.19 (0.05, 0.81), and dehydration, OR 0.23 (0.05, 1.01). ACE reduced functional decline for these combined reasons for admission versus all other diagnoses (n = 586, OR 0.44, CI 0.30 – 0.66). For this subgroup targeted by reasons for admission, the number needed to treat to prevent ADL decline is 8 compared to 22 patients for the overall sample.
CONCLUSION: Patients can be targeted for ACE by reason for admission. The ACE unit intervention is most effective in preventing functional decline in patients with pulmonary and cardiovascular diagnoses, UTI, or dehydration. These results may assist hospitals in

providing ACE intervention to patients most likely to experience benefits in functional outcomes.

**VULNERABLE ELDERS' RATINGS OF HEALTH PROVIDERS ARE MORE CLOSELY RELATED TO COMMUNICATION SKILLS THAN THE QUALITY OF CARE.** J.T. Chang[1], P.G. Shekelle[2], D.H. Solomon[2], C.H. Maclean[2], D. Saliba[2], C.P. Roth[2], C. Kamberg[2], R.T. Young[1], N.S. Wenger[1]; [1]University of California, Los Angeles, Los Angeles, CA; [2]RAND Corporation, Santa Monica, CA *(Tracking ID #51986)*

BACKGROUND: It is not known how much quality of care and the relative influence of provider communication skills contribute to patients' ratings of health care providers. Using a set of process of care quality assessment indicators developed by the Assessing Care of Vulnerable Elders (ACOVE) project, we examined the relationship between these factors.
METHODS: ACOVE developed 236 quality of care indicators for community-based older adults at increased risk for functional decline and death. Patient ratings of his/her health provider and communication with his/her provider were measured by interview using items from the Consumer Assessment of Health Plans (CAHPS) Medicare Managed Care questionnaire. The ACOVE assessment was applied to a random sample of 420 vulnerable elders selected from two senior managed care plans; 277 (71%) interviews were completed among 389 patients who were alive. We examined the relationship of patients' global assessments of providers with overall quality of care and patients' perceptions of providers' communication skills.
RESULTS: Patients' ratings of their providers were generally high (mean 9.0 out of 10, s = 1.5, range 0 – 10) and were positively correlated with overall quality of care (r = 0.17, p = 0.008) and positive communication attributes (r = 0.46, p < 0.000). However, ratings of patients' health plans were negatively correlated with overall quality of care (r = −0.14, p = 0.02). In a multivariate model including gender, race, and health status, both overall quality of care (β = 0.14, p = 0.03) and communication (β = 0.43, p < 0.000) predicted patients' ratings of their providers. However, communication quality was more influential.
CONCLUSION: Most vulnerable elders from two senior managed care plans gave their providers high marks. Enhanced quality of care and communication were related to higher provider ratings; however, communication was a more influential factor. Methods of patient assessment more closely related to quality of care are needed. Health providers may enhance patient ratings by improving communication with their patients.

**HOSPITALIZATION OF LUNG CANCER PATIENTS ENROLLED IN HOSPICE CARE.** A. Cintron[1], M.B. Hamel[1], R.B. Davis[1], R.B. Burns[1], R.S. Phillips[1], E.P. Mccarthy[1]; [1]Beth Israel Deaconess Medical Center, Boston, MA *(Tracking ID #51632)*

BACKGROUND: Many patients near the end of life are hospitalized despite being in hospice care. We identified factors associated with hospitalization of patients with lung cancer enrolled in hospice care and described their hospital experiences.
METHODS: We used the Surveillance, Epidemiology, and End Results (SEER) — Medicare linked database to study patients dying with lung cancer between 1991 and 1998 who were enrolled in hospice prior to death. We used a Cox regression analysis to identify factors associated with time to hospitalization from date of hospice enrollment. Patients who died without being hospitalized were censored. We adjusted for patient demographics, year of hospice enrollment, and SEER registry. Adjusted hazard ratios (aHR) > 1.0 indicate higher hospitalization rates. For hospitalized patients, we examined admission diagnoses, aggressiveness of care, and in-hospital death.
RESULTS: Of the 12,140 patients, 743 (6%) were hospitalized at least once after hospice enrollment. Hospitalization rates among hospice patients have declined over time from 7.0% in 1991 to 4.3% in 1998 (p < 0.001 for trend). Black patients were more likely to be hospitalized than non-black patients (8.4% vs 5.9%, p = 0.002). After adjustment, the hospitalization rate for patients enrolled in hospice care declined by 7.0% per year [aHR = 0.93, 95% CI (0.89 – 0.97)]. Black patients remained more likely to be hospitalized than non-black patients [aHR = 1.36, 95% CI (1.07 – 1.74)]. Age, sex, and marital status did not affect the rate of hospitalization. There were 913 admissions for 743 patients; 627 (84%) patients were admitted only once, 79 (11%) twice, and 37 (5%) more than two times. 266 (36%) patients died in the hospital. The most common admission diagnoses were: 1) complications due to lung cancer such as metastatic disease and pleural effusions (35%), 2) bone fractures (8%), and 3) pneumonia (7%). More than one third of patients [n = 254 (34%)] received some form of aggressive care. 13% of patients received care in either a medical or cardiac intensive care unit. 21% received invasive procedures [major surgery (9.1%), minor surgery (2.6%), cardiac procedure (0.1%), endoscopy (3.9%), chest tube insertion (2.6%), thoracentesis (4.0%), lumbar puncture (0.7%), and arterial blood gas monitoring (1.1%)]. 6% of patients received chemotherapy and/or radiation therapy. 4% received other aggressive therapy [cardiopulmonary resuscitation (0.5%), intubation/mechanical ventilation (3.2%), and dialysis (0.4%)].
CONCLUSION: The rates of hospitalization for patients enrolled in hospice care with lung cancer appear to be declining. However, hospice patients with lung cancer who are hospitalized undergo aggressive care and often die in the hospital rather than at home.

**WALKING IMPAIRMENT IN AN ETHNICALLY DIVERSE COHORT OF PATIENTS SCREENED FOR PERIPHERAL ARTERIAL DISEASE.** T.C. Collins[1], N.J. Petersen[1], M.E. Suarez-Almazor[1], C.M. Ashton[1]; [1]Baylor College of Medicine, Houston, TX *(Tracking ID #52012)*

BACKGROUND: Walking impairment is common in patients with PAD. The purpose of this study was to determine the magnitude of walking impairment among a diverse cohort of patients with asymptomatic and symptomatic PAD.
METHODS: We screened patients over 50 years of age for PAD from the Houston VAMC and the Harris County Hospital District. PAD was diagnosed by the bedside blood pressure measurement, the ankle-brachial index (ABI; a level <0.9 was defined as disease). Patients completed the San Diego Claudication Questionnaire, a 9-item questionnaire that can be used to categorize leg symptoms into three major categories: asymptomatic, atypical leg symptoms, and intermittent claudication. Atypical leg symptoms was defined as leg discomfort that was not classic intermittent claudication. Patients also completed the Walking Impairment Questionnaire (WIQ) which measures walking distance, walking speed, and stair climbing; each component is the summation of the degree of difficulty for several items according to the Likert score chosen by the patient.
RESULTS: Among 403 patients screened, 67 were found to have PAD (18 Non-Hispanic Whites, 31 African Americans, and 18 Hispanics). Walking distance, speed, and stair climbing were all significantly lower for patients with PAD when compared to patients wihout PAD. The mean walking distance was 43.3 ± 5.1 for patients with PAD and 60.4 ± 2.2 for patients without PAD, p ≡ .04. Both walking speed and stair climbing were statisically significantly lower for patients with PAD when compared to patients without PAD. Of the 67 patients with PAD, 25 were asymptomatic, 37 were categorized as having atypical leg symptoms, and 5 were categorized as having symptoms of intermittent claudication. Among the patients with PAD, the mean walking distance was lowest for patients with atypical leg symptoms (29.6 ± 35.6) when compared to patients with intermittent claudication (38.4 ± 42.7) and without leg symptoms (64.6 ± 39.4), p < .0001. The mean walking speed was also lowest for patients with atypical leg symptoms (27.1 ± 31.4) when compared to patients with intermittent claudication (41.7 ± 41.4) and without leg symptoms (58.8 ± 38.9), p < .0001. Among patients with atypical leg symptoms, the mean value for the ease of climbing stairs was 31.9 ± 36.1, which was much lower than that for patients with intermittent claudication (44.2 ± 48.2) and without leg symptoms (51.5 ± 40.4), p < .0001.
CONCLUSION: Patients with PAD, most notably those with atypical leg symptoms, have compromised walking ability including distance, speed, and the ability to climb stairs. Patients with asymptomatic disease have less walking impairment. Future research should focus on methods to improve and/or maintain daily walking in patients with PAD.

**THE COMING EPIDEMIC OF OBESITY IN ELDERLY AMERICANS.** P.K. Crane[1], D.E. Arterburn[2]; [1]University of Washington, Seattle, WA; [2]VA Puget Sound Health Care System, Seattle, WA *(Tracking ID #51938)*

BACKGROUND: The prevalence of obesity has increased over the past 30 years in men and women of every age, race, and educational level. We constructed a model to predict the future prevalence of obesity in the elderly.
METHODS: A model of obesity prevalence from 1991 to 2026 was constructed. Age- and sex-specific baseline estimates of the numbers of individuals in five body mass categories were obtained by multiplying the number of men and women in 1991 in each year of age by the age- and sex-specific prevalence of the body mass categories from the third National Health and Nutrition Examination Survey (NHANES III). Annual sex- and age-specific mortality rates for 1960 – 1991 were obtained from U.S. Census Bureau data. Predicted age- and sex-specific annual mortality rates for 1992 to 2026 were obtained using linear regression of the mortality rates from 1960 – 1991. The expected changes in the proportions of the U.S. population in each of the five body mass categories were determined through age-cohort analyses of four successive cross-sectional surveys conducted by the National Center for Health Statistics between 1960 and 1994.
RESULTS: The number of overweight or obese American men (defined as BMI > 25) over the age of 65 is predicted to increase from 8 million in 1991 to 20 million in 2026. The number of obese elderly men (defined as BMI > 30) is predicted to increase from 2 million in 1991 to 8 million in 2026. The number of overweight and obese elderly women is predicted to increase from 11 million in 1991 to 24 million in 2026, while the number of obese elderly women is predicted to increase from 5 million to 13 million in the same time period.
CONCLUSION: If demographic trends from the past 40 years continue, the numbers of overweight and obese elderly individuals will increase substantially. Among older adults, obesity is associated with a higher prevalence of many chronic health conditions including diabetes, coronary disease, and osteoarthritis. Obesity in this age group has been associated with reductions in overall perception of health, mobility, and the ability to perform the activities of daily living. Obesity is also very costly in economic terms. Models used to estimate the effect of the aging baby-boom generation and increased longevity on future health care spending have failed to account for the changing prevalence of obesity and associated diseases. These findings suggest that the health care system will be faced with the management of large numbers of obese elderly patients in the coming decades.

**OUTPATIENT COMPREHENSIVE GERIATRIC ASSESSMENT AND GERIATRIC TEAM CARE: SYSTEMATIC REVIEW OF RANDOMIZED CONTROLLED TRIALS (RCTS).** J. Darer[1], W. Weller[1], C. Blaum[1], J. Pearse[1], S. Myles[1], E. Shadmy[1], E. Park[1], M. Patt[1], L. Fried[1], N.R. Powe[1]; [1]Johns Hopkins University, Baltimore, MD *(Tracking ID #51991)*

BACKGROUND: Over the last 15 years, attempts have been made to improve care for older Americans using various models of care delivery. We evaluated the evidence on the effectiveness of comprehensive geriatric assessment and geriatric team management on outcomes of older Americans.
METHODS: We conducted a systematic literature review using evidence-based methods. To be eligible, studies had to be a published RCT, include a comprehensive geriatric intervention performed largely in the outpatient setting, report upon clinical or economic outcomes, and be performed in the U.S.
RESULTS: Of 1771 citations, 26 reports of 13 unique RCTs met the inclusion criteria, in which 1852 patients were randomized to comprehensive geriatric interventions and 1789 to controls. Four trials performed brief comprehensive geriatric assessment interventions; 8 comprehensive assessments with substantial follow-up and management; 1 geriatric team management alone. In all trials, care teams included a physician (geriatrician or internist/family practitioner with geriatric training) and a nurse or nurse practitioner/nurse specialist; in 11, care teams included social workers. Six trials demonstrated statistically significant improvements in physical functioning; 1 reduction in nursing home admissions; none reduced hospitalization or mortality. Improved physical functioning versus no improvement was associated with trials of duration >12 months (Odds ratio [OR] = 30, p = .027), excluding

impaired cognitive function patients (OR = ∞, p = .021), and not focussing on medically unstable patients (OR = ∞, p = .021). Other trial characteristics associated with improved physical function, but not reaching statistical signficance possibly due to the small number of studies, include trials starting after 1987 (OR = 6.7); number of subjects > 200 (OR = 6.7); targeting chronic conditions (OR = 6); intervention duration > 2 months (OR = 5); geriatrician team member (OR = 2.7), increased quality score (OR = 2.7); and nursing home residents excluded (OR = 2.7).
CONCLUSION: Comprehensive geriatric assessment and geriatric team care interventions have the potential to improve physical functioning. Trials of longer duration and those targeting appropriate individuals (and possibly more recent, larger, and higher quality trials) appear to be more successful. Care policies and future research should attempt to build upon this experience.

**HIV TESTING IN OLDER WOMEN: DOES KNOWLEDGE OF HIV TRANSMISSION AFFECT CONSENT?** J.P. Doyle[1], S. Henderson[1], L. Bernstein[1], D.M. St. George[2], G.M. Corbie-Smith[3]; [1]Emory University, Atlanta, GA; [2]Walden University, Minneapolis, MN; [3]University of North Carolina at Chapel Hill, Chapel Hill, NC *(Tracking ID #52332)*

BACKGROUND: AIDS is on the rise among older adults. However, little is known about HIV knowledge and willingness to be tested in older, urban women. Fewer Black and Hispanic women aged 50 and older are tested for HIV at publicly funded sites, although they are 2 – 2.5 times more likely to be HIV positive than White women. In this analysis, we sought to evaluate whether knowledge of HIV transmission was associated with willingness to be tested for HIV.
METHODS: A questionnaire was administered by trained interviewers to a sample of women aged 50 and over attending an inner city primary care clinic. We assessed participants' knowledge of HIV/AIDS as well as the sociodemographic and other factors that could be associated with agreeing to HIV testing at the completion of the survey.
RESULTS: As of December 2001, 238 eligible women ages 50 – 95 (mean = 61.9; s.d. = 7.9) had completed the survey. The sample was predominantly African-American (76.7%), currently or previously married (89%), no longer employed (71.6%), heterosexual (98.3%), not currently sexually active (74.7%), and had not completed high school (55.3%). Knowledge of HIV risk and routes of transmission was measured using 9 questionnaire items. Although 91% knew the risk of male-female intercourse, proportions answering other questions correctly were low: transmission by oral sex (3%) or kissing (19%), effectiveness in HIV prevention of condoms (8%), abstention (41%), diaphragms (54%), monogamy (56%), spermicide (60%), and vasectomy (61%). The mean knowledge score was 3.9 correct (s.d. = 1.6) out of a possible 9.
In this sample, 21.2% agreed to HIV testing at the completion of the survey. In bivariate analyses, factors associated with agreeing to testing were younger age (p < .01), non African-American race (p = .02), being on disability (p = .01), and being at moderate/high risk of HIV (based on sexual history, prior drug use, and/or exposure to potentially infected fluids) (p < .01). HIV knowledge was not associated with willingness to be tested, nor was marital status, education, living situation, religion, spirituality, sexual orientation, current sexual activity, previous HIV screening, or trust that one's partner would reveal HIV positivity. A multivariate regression model including potentially relevant covariates confirmed the bivariate findings of lack of association between HIV knowledge and willingness to be tested.
CONCLUSION: In urban women 50 and older, knowledge of HIV transmission was not associated with willingness to be tested. Interestingly, older African-American women were less likely to agree to testing, even though previous studies have shown that they are more likely to be HIV positive than White women. Thus, further research may be necessary to identify factors associated with consenting to HIV testing in this population.

**LOW YIELD OF TSH TESTING IN ELDERLY PATIENTS WITH DEPRESSION.** S. Fraser[1], K. Kroenke[1], C. Callahan[1], J. Unutzer[2], J. Williams[3]; [1]Regenstrief Institute and Indiana University, Indianapolis, IN; [2]UCLA, Los Angeles, CA; [3]Duke University, Durham, NC *(Tracking ID #51607)*

BACKGROUND: While hypothyroidism has been purported to be an important secondary cause of depression, previous studies have typically involved small numbers of patients, evaluated patients younger than 65 years, and produced conflicting results. We examined the yield of TSH testing in a large sample of elderly primary care patients with depression severe enough to warrant treatment.
METHODS: The study sample comprised 882 outpatients from 18 primary care sites around the country enrolled in the intervention arm of the IMPACT study, a clinical trial of depression care management for individuals ≥60 years of age with major depression or dysthymia. Depressive diagnoses were confirmed with the Structured Clinical Interview for DSM-IV (SCID) and depression severity was assessed with a 20-item depression rating scale, the SCL-20. Selected symptoms related to depression and thyroid dysfunction were evaluated with a 15-item abbreviated version of the SF-36. Data on all prescription medications were collected at the time of enrollment.
RESULTS: TSH results were available for 726 (82.3%) participants. Patients without a TSH were more likely to be men and to have slightly worse depression than those in whom a TSH was obtained. Although 32 (4.4%) had an abnormal TSH, the vast majority (n = 27) had only marginally elevated values (range, 5.08 – 8.52 μU/mL). Only 5 patients (0.7%) had TSH levels over 10 μU/mL, and two of these were on levothyroxine at the time of testing. Of the ten percent of participants (79/726) receiving thyroid replacement, most (n = 67) were chemically euthyroid as judged by TSH testing. While those with TSH values exceeding 5 μU/mL were more likely to be on thyroid replacement than those whose TSH was normal (p < 0.0001), the two groups were otherwise clinically similar. Notably, there was no difference in severity of depression, number of prior episodes of depression, or individual symptoms (fatigue, appetite or weight changes, etc.) suggestive of hypothyroidism.
CONCLUSION: The prevalence of an abnormal TSH in older patients with depression is low and no greater than that cited for the general elderly population in the medical literature. Moreover, most abnormal TSH values are borderline and their causal relationship to a coexisting depression is uncertain.

**SURGICAL OUTCOMES FOR PATIENTS AGE 80 OR OLDER: MORBIDITY AND MORTALITY FROM MAJOR NON-CARDIAC SURGERY.** M.B. Hamel[1], W.G. Henderson[2], S.F. Khuri[3], J. Daley[4]; [1]Beth Israel Deaconess Medical Center, Boston, MA; [2]Hines VA Center for Cooperative Studies Coordinating Center, Hines, IL; [3]Boston VA Healthcare System, West Roxbury, MA; [4]Massachusett General Hospital, Boston, MA *(Tracking ID #51728)*

BACKGROUND: Americans age 80 or older comprise a substantial and growing portion of patients seen in doctors' offices and hospitals, and they often face decisions about major surgery. We examined outcomes from non-cardiac surgery for patients 80 or older.
METHODS: We studied patients enrolled in the Department of Veterans Affairs National Surgical Quality Improvement Project (NSQIP), who had non-cardiac surgery under general, spinal or epidural anesthesia between 1991 and 1999 (594,911 patients total; 26,648 patients 80 or older; 568,263 patients <80 years old). We assessed survival status at 30 days and the occurrence of 21 selected surgical complications: wound (3 types), respiratory (4), urinary tract (3), nervous system (3), cardiac (3), other (5).
RESULTS: Of the 26,648 patients age 80 or older, 98% were male, 80% were white, 14% had a history of chronic lung disease, and 3% had a history of congestive heart failure. The most common operations among the oldest patients were: transurethral prostatectomy, hernia repair, colectomy, elective hip replacement, cholecystectomy, and carotid endarterectomy. Thirty-day mortality rates varied widely across the types of operations and were higher for patients 80 or older than for younger patients (8% vs 3%, p < 0.0001). Mortality rates for those age 80 or older were <2% for many commonly performed operations (e.g. transurethral prostatectomy, hernia repair, knee replacement, carotid endarterectomy). Postoperative complications were very common among patients 80 or older: 20% of patients had 1 or more complications. The most common complications were pneumonia (6%), urinary tract infection (6%), need for prolonged (>48 hours) ventilator support (4%), need for re-intubation (3%), cardiac arrest (2%), and systemic sepsis (2%). Patients who suffered post-operative complications had higher 30-day mortality than those who did not (among those 80 or older, 26% vs 4%, p < 0.0001). For 11 of the 21 complications studied, 30-day mortality for patients 80 years or older was >33% (e.g. mortality after postoperative myocardial infarction was 48% and after acute renal failure 52%). Risk factors for poor outcomes (comorbid illnesses, preoperative physiologic disturbances, and poor baseline functional status) were the same for older and younger patients, and the NSQIP mortality risk model performed very well on patients age 80 or older (c statistic 0.83).
CONCLUSION: For patients 80 or older who had major non-cardiac surgery at Veterans Affairs Medical Centers, 30-day mortality was 8% overall; however, mortality was quite low (<2%) for many commonly performed operations. One in five patients suffered at least one postoperative complication, and mortality exceeded 25% for patients who had one or more of 21 complications.

**IMPROVING PALLIATIVE CARE IN NURSING HOMES.** L.C. Hanson[1], K. Reynolds[1], M. Henderson[1]; [1]University of North Carolina at Chapel Hill, Chapel Hill, NC *(Tracking ID #51937)*

BACKGROUND: Nursing homes are an increasingly common site for terminal care but staff have little expertise in palliative care. We designed an intervention to increase hospice use, pain assessment and treatment and documentation of advance care planning in nursing homes.
METHODS: We implemented and evaluated a 12-month palliative care quality improvement program in 4 nursing homes. The intervention included a leadership training conference, 6 on-site staff education sessions using a standardized curriculum, 6 on-site quality improvement consultations, and quarterly feedback of quality indicator data. Quality indicator data on hospice use, pain management and advance care planning came from random chart review of 50% of the nursing home census, and from hospice census records. The program was evaluated by testing for change in quality indicators pre and post intervention.
RESULTS: We collected data on 196 residents at Time 1 and 208 residents at Time 2. Residents' mean age was 82, 24% were African-American and 76% were women, 75% had some cognitive impairment. Their most common diagnoses included dementia (40%), stroke (24%), and CHF (21%). Flacker Mortality Risk Scores estimated a 50% or greater probability of dying within 1 year for 28% of residents, and the actual mortality rate in the population was 4.6% per month. Hospice enrollment increased from 28 pre-intervention to 47 post-intervention (p = .023). Documented pain assessment increased from 9% to 45% of charts (p < .001). Use of pain medication for residents in pain did not change (78 vs 80%, p = NS) but use of non-medication pain treatment increased (16% to 35%, p = .002). Documented DNR orders did not change (65 vs 70%, p = NS), but documentation of advance care planning discussions increased (2% to 13%, p < .001).
CONCLUSION: A quality improvement intervention increased hospice enrollment, pain assessment, non-medication based pain treatment, and documented advance care planning in nursing homes.

**SYMPTOM DISTRESS IN THE LAST DAYS OF LIFE.** J.S. Kutner[1], B. Renfrew[1], C.T. Kassner[1], D.S. Main[1], J.F. Steiner[1]; [1]University of Colorado Health Sciences Center, Denver, CO *(Tracking ID #51147)*

BACKGROUND: The central goals of hospice and palliative care are to relieve symptom distress and maximize quality of life. Given the previously-observed negative impact of symptom distress on quality of life, we sought to describe symptom distress and quality of life in the last days of life among persons receiving hospice/palliative care.
METHODS: Prospective cohort study conducted in the Population-based Palliative Care Research Network (PoPCRN) among English-speaking adults. Data were collected from nurses, patients, and caregivers at admission and at frequent intervals until death or discharge. This abstract presents the nurse-reported data collected at the last assessment prior to death, using the Condensed Memorial Symptom Assessment Scale (MSAS) and the McGill Quality of Life Questionnaire (MQOL).
RESULTS: Symptom and quality of life data are available for 32 individuals from 5 PoPCRN sites. 44% were female, 91% were white, 67% had a cancer diagnosis, and 47% were married.

The mean age was 69 years (range 33 – 100). The data were collected 0 – 23 days prior to death (median = 7). Patients experienced, on average, 12 symptoms (SD 4.2, range 4 – 17). The most prevalent symptoms were also the most distressful. The 5 most common symptoms were: lack of energy (97%), lack of appetite (93%), feeling drowsy (93%), pain (90%) and dry mouth (83%). MSAS mean scores (range 0 – 4; higher number = more symptom distress) indicate that these symptoms were also distressful: lack of energy = 3.3, lack of appetite = 2.7, feeling drowsy = 2.5, pain = 2.2, dry mouth=2.2. Relative to medical oncology patients, these patients experienced greater symptom distress (see Table). Despite this significant symptom burden and the proximity of data collection to time of death, the overall quality of life of these patients was comparable to that of a general palliative care population, as demonstrated by mean total MQOL score (range 0 – 10; 0 = bad, 10 = good) = 5.7 (vs. 6.1 in MQOL validation studies).
CONCLUSION: There was a significant unrelieved physical symptom burden in the days preced-ing death among these hospice/palliative care patients. Given the hospice/palliative care setting and the availability of effective means of treating pain at the end of life, the extent to which pain was prevalent and distressful is particularly troublesome. These data indicate a need for better understanding of and interventions for relieving symptom distress in the days prior to death.

**MSAS Scores: Study Patients vs. Med Onc**

| | Study Patients | Med Onc Patients |
|---|---|---|
| Global Distress Index | 2.1 | 1.3 |
| Psychologic Symptoms | 1.8 | 1.1 |
| Physical Symptoms | 1.9 | 0.9 |

**INFORMAL CAREGIVING FOR ELDERLY INDIVIDUALS WITH DEPRESSION.**
K.M. Langa[1], M.A. Valenstein[1], A.M. Fendrick[1], M.U. Kabeto[1], S. Vijan[1]; [1]University of Michigan, Ann Arbor, MI *(Tracking ID #50847)*

BACKGROUND: Depression is one of the most common psychiatric disorders among elderly individuals, affecting about 5 million older Americans. Depressive symptoms may interfere with independent functioning in older individuals and, therefore, increase the burden on informal caregivers. Little is known, however, to what extent depression in elderly individuals leads to increased levels of informal caregiving, particularly after adjusting for the presence of other coexisting chronic conditions.
METHODS: We used data from the 1993 Asset and Health Dynamics (AHEAD) study, a nationally representative longitudinal survey of individuals age 70 or older (N = 7,443). A modified version of the Center for Epidemiologic Studies Depression Scale (CES-D) was used to classify individuals as: 1) no depression (0 of 8 depressive symptoms in last week); 2) 1 to 3 depressive symptoms in last week; or 3) 4 to 8 depressive symptoms in last week. A two-part multivariable regression model was used to determine the weekly hours of informal caregiving provided to individuals in each category, after adjusting for sociodemographic characteristics, living situation, and coexisting chronic conditions (dementia, diabetes, heart disease, hypertension, stroke, cancer, lung disease, other psychiatric problems, arthritis, and urinary incontinence).
RESULTS: 44% of individuals reported 1 – 3 depressive symptoms and 18% reported 4 – 8 depressive symptoms. After adjustment for covariates, those with no depressive symptoms received an average of 2.7 hours per week of informal care, while those with 1 – 3 symptoms received 4.2 hours (1.5 additional hours), and those with 4 – 8 symptoms received 6.6 hours of care (3.9 additional hours) ($p < .01$). The CES-D symptoms most predictive of receiving informal care were: 1) "Everything I did was an effort" (OR 3.4, 95% CI 2.9 – 3.9); and 2) "I could not get going" (OR 2.9, 2.5 – 3.4). Using the 1998 mean wage for a home health aide ($8.20) as the value of an informal caregiver's time, the expected additional yearly cost of informal care for depression in the US is about $10 billion.
CONCLUSION: Presence of depressive symptoms in elderly individuals is independently associated with significantly higher levels of informal caregiving, even after adjusting for other important coexisting chronic conditions. The additional hours of care attributable to depression represent a significant burden on family members and a significant societal economic cost. Further research should evaluate whether successful treatment of depression in older individuals results in improved independent functioning, and a reduced need for informal care from family members.

**PREDICTORS OF HIGH LEVELS OF OUT-OF-POCKET HEALTH CARE EXPENDITURES AMONG OLDER AMERICANS.**
K.M. Langa[1], D.R. Weir[1], M.U. Kabeto[1], A.M. Fendrick[1]; [1]University of Michigan, Ann Arbor, MI *(Tracking ID #51121)*

BACKGROUND: High levels of out-of-pocket expenditures (OOPE) for health care services have been shown to decrease access to care, reduce compliance with prescribed medical interventions, and diminish quality of life. Elderly individuals may be particularly vulnerable to the negative effects of high OOPE due to their relatively poor health status, lower income, and less generous health insurance coverage. Our objectives were to: 1) quantify OOPE for individuals age 70 or older in the U.S.; 2) determine which specific services generate OOPE; and 3) identify sociodemographic and clinical characteristics that predict high levels of OOPE.
METHODS: We used data from the 1995 wave of the Asset and Health Dynamics (AHEAD) Study, a nationally representative, longitudinal survey of older Americans. Community-dwelling respondents reported OOPE for the prior 2 years for: 1) hospital and nursing home stays; 2) doctor visits, dental visits, and outpatient surgery; 3) home care or other community-based "special services"; and 4) prescription medications. A multivariable two-part regression model that adjusted for differences in sociodemographics, living situation, functional limitations, co-morbid chronic conditions, and insurance coverage was used to estimate the impact of specific demographic factors and clinical conditions on OOPE.
RESULTS: Of the 6,373 community-dwelling individuals age 70 or older in the 1995 wave of AHEAD, 97 % reported having any OOPE, with an unadjusted mean total of $1,800 per year (95% CI: $1,690 – 1,990). Prescription medication expenditures ($800 per year) and hospital/nursing home expenditures ($600 per year) were the largest OOPE components. Factors most likely to significantly increase OOPE included functional limitations (>4 ADL limitations, 80% higher OOPE, $p < .01$) and the presence of chronic conditions such as heart disease (53% higher OOPE, $p < .01$), hypertension (51% higher OOPE, $p < .01$), diabetes (38% higher OOPE, $p < .01$), and cancer (27% higher OOPE, $p < .01$). Significantly lower OOPE were made by individuals enrolled in a Medicare HMO (20% lower OOPE) or a Medicaid program (35% lower OOPE).
CONCLUSION: OOPE for health care services made by elderly individuals are substantial and mainly devoted to prescription medications and hospital/nursing home services. Individuals with chronic conditions are particularly susceptible to high levels of OOPE. Future health insurance policy changes for elderly individuals should focus on reducing OOPE among those most vulnerable to the documented adverse effects of high levels of patient cost-sharing.

**AGE AND MEDICATION ACCEPTANCE.**
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BACKGROUND: Adherence to prescribed medication regimens is a persistent problem for older patients. We studied the impact of patients' age on the perceived importance and interaction of three factors known to affect younger peoples' acceptance of a medication: the severity of the medical condition, the extent of possible medication side effects, and the level of trust in the physician.
METHODS: A convenience sample of 170 French adults aged 18 – 93 rated their likelihood of taking a medication prescribed by their physician to alleviate physical suffering in 27 scenarios in which three levels (mild, moderate, and severe) of each of the above three factors were combined in an orthogonal factorial design.
RESULTS: Trust in their physician was given the most weight by the patients aged 75 and over and, to a lesser extent, by those aged 60 – 74. In contrast, those aged 35 – 50 put greatest weight on the severity of the health condition, and those aged 18 – 25 were more balanced in their weightings. Whereas in the 18 – 25 year-olds the information about possible side effects played a greater role when their trust in their physician was high, in those aged 75 and over the reverse was found. When their trust in their physician was high, the very elderly gave a high rating of medication acceptance almost irrespective of the severity of possible side effects.
CONCLUSION: To promote adherence by older patients to prescribed medications, the physicians of these patients need to establish trust, but not abuse its power.

**VISION IMPAIRMENT AND COMBINED VISION AND HEARING IMPAIRMENT PREDICT COGNITIVE AND FUNCTIONAL DECLINE AMONG OLDER WOMEN.**
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BACKGROUND: Correctable hearing and vision impairment are common in the elderly. However, few prospective studies have investigated the association between sensory impairment and subsequent cognitive and functional decline.
METHODS: We studied 1346 community-dwelling women aged 69 to 98 who participated in the multi-center Study of Osteoporotic Fractures. Hearing and vision were measured at an initial visit; changes in cognitive function and functional status were prospectively assessed at a subsequent examination (average interval 4.4 years). Subjects were defined as hearing impaired if they could not hear a 25- and 40-decibel tone at 2-Khz in their best ear, measured by pure tone audiometry. Vision impairment was defined as binocular corrected visual acuity worse than 20/40. Cognitive function was assessed using a modified version of the Mini-Mental Status Exam (26-point maximum score). Functional status was measured using self-reported ability to walk, climb stairs, shop, prepare meals, and do heavy housework. Significant decline in cognitive function and functional status was defined as decline worse than 1 SD from average over time. We measured the strength of the association between baseline measures of hearing impairment, vision impairment, and combined hearing-vision impairment and measures of cognitive and functional decline. All odds ratios were adjusted for the independent effects of age, comorbidities, smoking status, body mass index, social network, hand grip strength, walking speed, presence of vertebral fracture, and benzodiazepine use with logistic regression models.
RESULTS: Visual impairment was present in 17.7% of subjects and was found to be significantly correlated with functional decline (OR 1.60, 95% CI 1.05 – 2.43) and cognitive decline (OR 1.72, CI 1.18 – 2.52). Hearing impairment was noted in 21.3% of subjects and was not correlated with functional decline (OR 0.98, CI 0.65 – 1.50). However, among those with poor hearing there was a trend toward poorer cognition over time (OR 1.39, CI 0.96 – 2.01). Subjects who had combined hearing and visual impairment had the highest odds for functional decline (OR 1.94, CI 1.05 – 3.61) and cognitive decline (OR 2.15, CI 1.24 – 3.74).
CONCLUSION: Our analysis suggests that vision impairment is independently associated with cognitive and functional decline over time, and there is a trend toward poorer cognition in those with hearing loss at baseline. Physicians caring for older women should actively search for correctable causes of vision and hearing impairment as this may prevent cognitive and functional decline.

**STEADINESS AS A PREDICTOR OF FUNCTIONAL CHANGE IN OLDER HOSPITALIZED PATIENTS.**
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BACKGROUND: Unsteadiness is a common complaint among older adults, but it is not known whether it is associated with worse outcomes in hospitalized elders.

METHODS: To determine whether steadiness at hospital admission predicts functional changes during hospitalization, we conducted a prospective cohort study of 1618 hospitalized patients aged ≥70 (mean age 78, 62% female). On admission, patients reported their steadiness with walking. Also at admission, patients reported whether they could perform independently each of 5 basic activities of daily living (ADL: bathing, dressing, transferring, toileting, and eating) at admission and 2 weeks prior to admission (baseline). We evaluated two subgroups: those with and those without pre-hospital ADL decline, with decline defined as the independent performance of fewer ADL at admission compared to baseline. For patients without pre-hospital decline, our outcome was in-hospital ADL decline. For patients with pre-hospital decline, our outcome was in-hospital recovery to baseline ADL function.
RESULTS: Among patients without pre-hospital ADL decline (n = 1055), 16% were "very unsteady" at admission, 29% were "slightly unsteady," 35% were "slightly steady," and 19% were "very steady." Rates of in-hospital ADL decline for this subgroup were 26% for very unsteady patients compared with 19%, 16%, and 8% for each successively higher level of steadiness (p < .001). For patients with pre-hospital ADL decline (n = 563), 46% were "very unsteady" at admission, 36% were "slightly unsteady," 14% were "slightly steady," and 4% were "very steady." Among this subgroup, 44% of very unsteady patients failed to recover, compared to 35%, 36%, and 33% for each successively higher level of steadiness (p = .06). Using logistic regression to adjust for age, gender, comorbidities, admission diagnoses, APACHEII score, mobility, and baseline ADL and IADL independence, unsteadiness remained associated with in-hospital ADL decline in patients without pre-hospital decline (odds for decline for very unsteady compared with very steady = 2.2, 95% CI = 1.1–4.4, p = .03). After multivariate adjustment, steadiness was not associated with in-hospital recovery in patients with pre-hospital decline (p = .47).
CONCLUSION: Unsteadiness was common among older hospitalized patients and predicted in-hospital ADL decline among those who had not already declined before admission.

**FUNCTIONAL OUTCOMES IN THE OLDEST OLD FOLLOWING TOTAL JOINT REPLACEMENT.** P.A. Moore[1], R.M. Lubitz[2], M.A. Smith[1], E.S. Moore[1]; [1]St. Vincent Hospital, Indianapolis, IN; [2]St. Vincent Hospital; Regenstrief Institute for Health Care, Indianapolis, IN *(Tracking ID #52318)*

BACKGROUND: Nearly 5 million Americans are over age 85, and the number of these oldest old is expected to double by 2025. As the population ages, the incidence of degenerative joint disease (DJD) is expected to increase. Total joint replacement (TJR) of the hip and knee for DJD improves mobility and reduces pain, but effectiveness of TJR for the oldest old is not well understood. Physician surveys indicate wide variation in the use of age as a criterion in the selection of patients for TJR. Therefore, we conducted a prospective study to assess the impact of age on patient-specific functional outcomes following TJR.
METHODS: Beginning in 1998, we surveyed 883 consecutive patients (88% of eligible) undergoing elective TJR surgery at two suburban Indianapolis hospitals. Surveys were administered prior to surgery, and again at 6 and 24 months post-TJR. The survey included reliable and valid measures of sociodemographic factors, co-morbid conditions, substance abuse, social support (MOS-20), generic physical health and emotional function (SF-12 PCS and MCS) and lower-extremity joint-specific pain and function (WOMAC). Subjects also reported changes in walking distance, use of pain medication and satisfaction associated with the procedure.
RESULTS: At two years follow-up, 844 patients (95.5%) had complete data for analysis. Mean age of the cohort was 67.3 years (range 25–100), 62% were women, and 91% were Caucasian; 3% (n = 25) were >85 years old. Elective knee replacement was performed on 62% (n = 529) and hip replacement on 38%. At two years, all patients achieved substantial improvements in pain and function. The oldest old reported similar reduction in the use of pain medication, and greater gains in walking distance than younger patients (p = 0.06), while younger patients felt that TJR more fully met their overall expectations (35% vs. 10%, p = 0.016). Using linear regression and controlling for type of procedure, gender, socioeconomic status, co-morbidity and social support, the oldest old experienced similar 2-year improvements in generic and disease-specific pain and function compared with the younger group (p = NS for each model).
CONCLUSION: These results suggest that older age does not independently affect generic and disease-specific outcomes over 2 years, and should not be used as a separate criterion to select patients for TJR.

**SCREENING FOR ALCOHOL PROBLEMS IN ELDERLY MEN AND WOMEN.** D.L. Mansell[1], C.I. Kiefe[1], R.M. Centor[1], R. Allman[1], D. Graham[1], S. Person[1]; [1]University of Alabama at Birmingham, Birmingham, AL *(Tracking ID #51260)*

BACKGROUND: The prevalence of alcohol problems in the elderly is expected to increase in the next 20 years, especially in women. Prior studies of screening tests for alcohol problems in the elderly have included few women, and several newer tests have not been studied.
METHODS: Patients age 65 and over in primary care and geriatric clinics completed a questionnaire containing the following screening tests for alcohol problems: MAST-G, short MAST-G, CAGE, TWEAK, AUDIT, and two questions developed by Cyr and Wartman. We evaluated for competence using the Folstein MiniMental exam and then interviewed patients with the SCID, a structured interview for DSM-IV alcohol disorders. We defined a current alcohol problem (CAP) as present if the patient answered yes to any of the SCID questions for current alcohol abuse/dependence. We modeled CAP using logistic regression with each screening test alone as the main independent variable, then added gender and ethnicity as covariates; missing values were not imputed. Because gender was a significant predictor in the models, we present separate models by gender. C statistics and Nagelkerke R squares are shown for test comparisons.
RESULTS: 401 of 478 patients who agreed to participate were competent and 310 completed SCID. Mean age was 72.5 y; 40% were male, 46% African American, 53% Caucasian. 59 (19%) had CAP (40 men).
CONCLUSION: The prevalence of CAP in our population suggests that screening for alcohol problems should be routine in elderly patients, including women. The MAST-G performs best as a screening test for CAP in this population but is also the longest, hence least practical as a screening test. The CAGE performs as well as or better than newer instruments, particularly in women.

**Test Performance-C Statistic (R-square)**

| | # of Items | CAP Overall | CAP Men | CAP Women |
|---|---|---|---|---|
| MAST-G | 24 | 0.82 (0.18) | 0.82 (0.25) | 0.77 (0.04) |
| Short MAST-G | 10 | 0.75 (0.11) | 0.75 (0.20) | 0.62 (0.01) |
| CAGE | 4 | 0.72 (0.12) | 0.68 (0.09) | 0.75 (0.11) |
| TWEAK | 5 | 0.65 (0.09) | 0.68 (0.14) | 0.53 (0.004) |
| AUDIT | 10 | 0.69 (0.09) | 0.66 (0.10) | 0.70 (0.03) |
| Cyr & Wartman | 2 | 0.59 (0.04) | 0.59 (0.04) | 0.55 (0.01) |

**HOSPICE UTILIZATION AMONG MEDICARE MANAGED CARE AND FEE-FOR-SERVICE PATIENTS DYING WITH CANCER.** E.P. Mccarthy[1], R.B. Burns[1], R.B. Davis[1], Q. Ngo-Metzger[1], R.S. Phillips[1]; [1]Beth Israel Deaconess Medical Center, Harvard Medical School, Boston, MA *(Tracking ID #51210)*

BACKGROUND: Hospice services are uniformly covered by Medicare and are believed to improve care at the end of life. However, a minority of patients dying with cancer use hospice. Since type of insurance may affect utilization, we examined whether patients with Medicare managed care insurance (HMO) were more likely to use hospice than patients with Medicare fee-for-service insurance (FFS).
METHODS: We studied Medicare beneficiaries diagnosed with cancer at age 66 or older in the Surveillance, Epidemiology, and End Results (SEER) Program who died between Jan 1, 1988 and Dec 31, 1998. We used the SEER-Medicare Database to link demographic and cancer characteristics to Medicare hospice claims for patients diagnosed with lung (n = 62117), colorectal (n = 57260), breast (n = 37609), prostate (n = 59826), bladder (n = 19598), pancreatic (n = 11378), liver (n = 2703) or gastric (n = 9599) cancer. We used Medicare enrollment data to identify patients enrolled in FFS (n = 233238) or in HMO (n = 26852) prior to death. We performed Cox regression to determine whether time to hospice entry and LOS in hospice differed between patients enrolled in FFS and HMO plans after adjusting for patient demographics, tumor registry, year of hospice entry, type of cancer, and stage. Adjusted hazard ratios (aHR) > 1.0 signify earlier hospice entry in the first model and shorter LOS in the second.
RESULTS: Of the 260,090 patients, most were male (59%), white (85%), and enrolled in FFS (90%). Only 21% received hospice care prior to death. Hospice use varied by cancer type ranging from 32% of patients with gastric cancer to 16% of patients with bladder cancer. Compared to FFS patients, HMO patients were more often male (61% vs 58%), Asian (13% vs 3%), and from registries located in western US [San Francisco/Oakland (44% vs 12%), Seattle (19% vs 13%) and Hawaii (13% vs 2%)] (all p-values <. 001). HMO patients were more likely to use hospice than FFS patients (32% vs 20%, p < .001). Among hospice patients, median LOS was longer for HMO patients (32 vs 25 days, p < .001). After adjustment, HMO patients enrolled in hospice earlier [aHR = 1.38, 95% CI (1.35–1.42)] and had a longer LOS [aHR = .91, (.88–.94)] than FFS patients. HMO patients were less likely to enroll in hospice within 7 days of their death (19% vs 23%, p < .001) and more likely to enroll in hospice over 180 days before death (8% vs 6%, p < .001). We found similar results when we examined patients within each of the 8 cancer types.
CONCLUSION: Hospice enrollment rates are quite low among elderly patients dying with cancer. Medicare beneficiaries enrolled in managed care are more likely to use hospice than those enrolled in FFS. Although these differences may reflect patient and family preferences, our findings raise the possibility that managed care plans are more successful at facilitating or encouraging hospice use for patients dying with cancer.

**DEPRESSIVE SYMPTOMS AND LOWER EXTREMITY PERFORMANCE IN PATIENTS WITH PERIPHERAL ARTERIAL DISEASE.** M.M. Mcdermott[1], P. Greenland[1], J. Guralnik[2], M. Criqui[3], K. Liu[1], C. Chan[1], L. Taylor[4], M. Quann[1]; [1]Northwestern University, Chicago, IL; [2]National Institute on Aging, Bethesda, MD; [3]Univeristy of California at San Diego, San Diego, CA; [4]Oregon Health Sciences Medical Center, Portland, OR *(Tracking ID #50795)*

BACKGROUND: Factors affecting functioning in patients with lower extremity peripheral arterial disease (PAD) are not fully understood. We studied the relationship between depressive symptoms and functioning in PAD.
METHODS: We identified 423 men and women age 55 and older with PAD from three Chicago-area medical centers. Depressive symptoms were measured with the short-form Geriatric Depression Scale (GDS), which uses a 0–15 scale (15 = worst). Depression is defined as GDS ≥ 6. Functional measures were 4 Meter walking velocity, six-minute walk, and 7-day physical activity measured by accelerometer. Participants underwent ankle brachial index (ABI) measurement, a measure of PAD severity. Comorbidities were ascertained with medical record review, a primary care physician questionnaire, medications, and patient report.
RESULTS: In age-adjusted analyses and compared to non-depressed participants, depressed participants had more comorbidities (3.0 vs. 2.3, p < 0.001), were more likely to smoke (29% vs. 18%, p = 0.025), and had more exertional leg pain that sometimes begins at rest (28% vs. 16%, p = 0.01). The table compares functioning between depressed and non-depressed PAD participants, adjusting for age, sex, race, comorbid disease, leg symptoms, and ABI.

CONCLUSION: Depression is associated with impaired functioning in persons with PAD, independently of comorbid disease and other covariates. Further study is needed to determine whether treating depression improves functioning in PAD.

**Adjusted Relationships Between Depression and Leg Functioning in PAD Participants**

| | Depressed (n = 92) | Not Depressed (n = 331) | P Value |
|---|---|---|---|
| Six-minute walk distance | 1,025 ft. | 1,159 ft. | <0.001 |
| 4-meter walk velocity (usual pace) | 0.84 m/sec | 0.89 m/sec | 0.036 |
| 4-meter walking velocity (rapid pace) | 1.13 m/sec | 1.21 m/sec | <0.01 |
| 7-day physical activity | 655 activity units (n = 43) | 808 activity units (n = 165) | 0.026 |

**EFFECT OF THE 1997 BALANCED BUDGET ACT ON LENGTH OF STAY IN HOME CARE.** R.L. Murkofsky[1], E.P. Mccarthy[1], R.B. Davis[1], R.S. Phillips[1]; [1]Division of General Medicine and Primary Care, Beth Israel Deaconess Medical Center, Boston, MA *(Tracking ID #51634)*

BACKGROUND: Prior to the 1997 Balanced Budget Act (BBA), home health agencies (HHAs) were reimbursed primarily on a fee-for-service basis. At that time, for-profit HHAs had a longer length of stay (LOS) in home care than not for-profit HHAs. With the BBA, HCFA made major cuts in home care funding by placing a per-beneficiary cap on reimbursement. In this context, we examined the effect of the 1997 BBA on LOS in for-profit and not for-profit home health agencies.
METHODS: We examined a nationally representative sample of current and discharged home care patients with Medicare insurance using the 1996 and 1998 National Home and Hospice Care Surveys. We developed a Cox Proportional Hazards model for LOS (days) in home care, using SUDAAN to adjust for the complex sampling design. We analyzed profit status of the HHAs, patient demographics, diagnoses, and dependency in activities of daily living (ADLs) and instrumental activities of daily living (IADLs).
RESULTS: In 1996, an estimated 5.8 million Medicare patients received home care in the United States (64% female, 67% white, 76% ≥65 years). In 1998, an estimated 6.3 million Medicare patients received home care (65% female, 64% white, 89% ≥65 years). Between 1996 and 1998 the percentage of home care patients receiving care from for-profit HHAs increased from 32% to 38%. Patient sex and diagnoses were similar between for-profit and not for-profit HHAs. Patients receiving care from for-profit HHAs (vs. not for-profit) were more likely to be 75 years and older (62% vs. 54%), to be non-white (25% vs. 16%), to reside in the South (52% vs. 22%), and to have ADL dependencies (51% vs. 42%) and IADL dependencies (36% vs. 28%). From 1996 to 1998, the unadjusted median LOS decreased for all home care patients from 59 to 44 days. For patients in for-profit HHAs the median LOS decreased from 111 to 55 days, while for those in not for-profit HHAs the median LOS decreased from 46 to 36 days. In a proportional hazards model, factors associated with LOS in home care included race, dependency in ADLs and IADLs, diabetes, congestive heart failure, rural residence, census region, and referral source for home care. After adjustment, for-profit HHA [Hazard Ratio for HHA discharge 0.82 (95% CI: 0.72, 0.94)] and 1996 survey year (vs. 1998) [0.72 (0.62, 0.84)] were both associated with longer LOS in home care.
CONCLUSION: After the 1997 Balanced Budget Act, length of stay in home care decreased among Medicare patients, particularly among those receiving care from for-profit home health agencies. Receiving care from a for-profit agency was associated with longer length of stay in home care, even after adjustment for patient demographics, diagnoses, functional status, and survey year. Whether the longer length of stay in for-profit home health agencies indicates higher quality of care, case-mix differences, or unnecessary services deserves further study.

**A CONTROLLED TRIAL OF OUTPATIENT END-OF-LIFE CARE — PSYCHOLOGICAL AND SPIRITUAL WELL-BEING.** M.W. Rabow[1], S.L. Dibble[1], S.Z. Pantilat[1], S.J. Mcphee[1]; [1]University of California, San Francisco, San Francisco, CA *(Tracking ID #52038)*

BACKGROUND: Outpatients with terminal or serious chronic illness who are nearing the end of life may experience significant emotional and spiritual distress. In a controlled trial, we evaluated the efficacy of an interdisciplinary palliative medicine consultation team to help such patients manage psychological symptoms and spiritual issues.
METHODS: Patients in 2 parallel, separate modules of an outpatient, university-based primary care clinic were assigned to intervention and control arms. In one module, 50 patients with severe CHF, COPD, or cancer received services and consultations from the team (experimentals), and in the other module, 40 received usual primary care (controls). Three times during the study year, we administered a battery of validated survey instruments to measure patients' anxiety (Profile of Mood States), depression (CES-D, with a cut-off score of 16 suggesting need for medication), spiritual well-being (Spiritual Well-Being Scale [SWBS]), and quality of life (QOL) (Padilla QOL Scale). To evaluate the intervention effect, we compared outcome differences between experimental and control groups at post-intervention, controlling for baseline group differences. Data were analyzed using descriptive and ANCOVA statistics.
RESULTS: The patient population (n = 90) was elderly (mean age 68.6 years), female (64%), low income (71%), retired (62%), unmarried (73%), and multi-ethnic (53% Caucasian, 18% African American, 10% Latino, 8% Asian, and 11% other). Except for gender, there were no significant differences in functional status, disease severity, sociodemographic, or outcome measures at baseline between the experimental and control groups. At baseline, 82% reported some level of anxiety. Post-intervention, experimental patients reported significantly less anxiety than did control patients ($F = 4.1$, $p < .05$). Post-intervention, the experimental group had significantly higher SWBS scores than the control group for both the religiosity ($F = 14.0$, $p < .001$) and spirituality subscales ($F = 8.2$, $p < .01$). The average CES-D depression score at baseline was 18.1 (SD = 12.3); 49% had scores >16. Despite the consultation team's recommendations to initiate an antidepressant medication in 40% of experimental patients, there were no significant differences between groups in post-intervention depression scores. At baseline, participants reported an average QOL score of 7.3 on the 0 – 10 scale. Post-intervention, there were no significant group differences.
CONCLUSION: Consultations by a palliative medicine team improved anxiety and spiritual well-being, but not depression or quality of life outcomes for outpatients with cancer, CHF, and COPD. Palliative consultation may be helpful for an even broader population of outpatients with terminal or serious chronic illness.

**PHYSICAL SYMPTOMS AND HEALTH CARE UTILIZATION AMONG OLDER ADULTS PRESENTING TO AN URBAN PRIMARY CARE CLINIC.** M.C. Sha[1], T.E. Stump[1], K. Kroenke[2], G. Westmoreland[3], C.M. Callahan[1]; [1]Indiana University Center for Aging Research, Indianapolis, IN; [2]Regenstrief Institute, Indianapolis, IN; [3]Indiana University, Indianapolis, IN *(Tracking ID #52317)*

BACKGROUND: Health care utilization by older adults is an increasing focus of health policy. While symptoms account for over half of outpatient visits, their impact on utilization has not been well studied in older adults. Therefore, we studied the prevalence of symptoms in older adults (age ≥60) and the association between symptoms and subsequent health care utilization.
METHODS: This prospective cohort study was conducted among older adults attending an urban primary care clinic. At the time of routine office visits, patients self-reported their symptoms using a 12-item scale adapted from the PRIME-MD. Patients also reported perceived health status. Using a comprehensive electronic medical record system, reported symptoms were linked with baseline clinical characteristics, health care utilization, and medication use. Utilization was monitored for one year after baseline. Health care utilization among patients with three or more symptoms was compared to patients with fewer symptoms using descriptive statistical techniques.
RESULTS: Self-reported symptoms were obtained from 3,498 older adults: mean age 68.9 (range 60 – 98), 69% female, 56% African-American, 20% smokers, and 79.3% qualified for health insurance on the basis of low income. For perceived health, 51.0% rated their health as fair or poor. Among the 12 symptoms, the most commonly reported were musculoskeletal pain (64.7%), fatigue (55.0%), and back pain (45.2%). The mean number of symptoms was 4.3 (range 0 – 12); 69.9% of patients reported ≥3 symptoms. Women, younger patients, smokers, and non-African Americans were more likely to report ≥3 somatic symptoms ($p < 0.003$). Perceived health status was highly correlated with the number of symptoms ($p < 0.0001$). Also, patients with ≥3 self-reported symptoms were more likely to be hospitalized (23.0% vs. 16.2%), to be seen in the emergency room (1.1 vs. 0.72), to have primary care and specialty outpatient visits (3.5 vs. 2.8 and 8.3 vs. 6.0, respectively), and to miss appointments (2.5 vs. 1.9) over the ensuing year (all $p < 0.0001$). Patients reporting more symptoms were also more likely to receive narcotics, NSAIDs, and muscle relaxants ($p < 0.01$).
CONCLUSION: This cohort of older adults presenting to an urban primary care clinic had a high prevalence of physical symptoms. Both the number of self-reported symptoms and perceived health status were strongly associated with utilization over the following year. Further research might explore the use of self-reported symptoms as a mechanism to target case management strategies.

**META-ANALYSIS OF THE EFFECT OF PENTOXIFYLLINE ON COGNITION IN VASCULAR DEMENTIA.** M.C. Sha[1], C.M. Callahan[1]; [1]Indiana University Center for Aging Research, Indianapolis, IN *(Tracking ID #52340)*

BACKGROUND: Vascular dementia is the third leading cause of dementia in the United States. Because vascular dementia is due primarily to chronic ischemia resulting from impairment of the cerebrovascular microcirculation, treatment has been focused on improved cerebral blood flow. For this reason, pentoxifylline has been posited as a potential treatment. The purpose of this meta-analysis is to critically review the world's literature exploring the efficacy of pentoxifylline as a treatment of vascular dementia.
METHODS: Electronic searches of MEDLINE, EMBASE, and the Cochrane Collaboration databases and a review of bibliographies were performed to identify 20 English and non-English article reporting original data on the use of pentoxifylline as a treatment for vascular dementia. Using a standardized form, the methodologic and outcome data for each article were abstracted. Qualifying studies met the criteria for randomized, double-blinded and placebo-controlled trials using standardized criteria for vascular dementia and objective measures of cognitive function.
RESULTS: A majority of the results (75%) were published from European cohorts of fewer than 100 patients between 1976 and 1997; most studies report patients' outcomes over 6 months or less. Only four studies qualified, and all used the DSM-III-R criteria for vascular dementia. The results of these studies are summarized below.

| | N | Duration | Cognitive Measure | Mean Improvement + SD Placebo | Treatment | p |
|---|---|---|---|---|---|---|
| 1 | 11 | 3 months | Mini-Mental Status Exam | 1.7 (na) | 3.8 (na) | <0.05 |
| 2 | 72 | 6 months | Figure Joining Test | 2.83 + 4.42 | 6.67 + 4.87 | 0.009 |
| 3 | 64 | 9 months | Alzheimer Disease Assessment Scale | -11.2 ± 3.11 | 1.36 ± 2.15 | 0.002 |
| 4 | 269 | 9 months | Gottfries Bråne Steen Scale | 0.0 + 13.9 | 2.1 + 14.7 | 0.065 |

CONCLUSION: There are few methodologically rigorous studies reporting the efficacy of pentoxifylline for the treatment of vascular dementia. These studies do report evidence of a potential benefit and provide the impetus for larger studies with longer follow-up.

**SEDATIVE HYPNOTICS AND THE RISK OF FALLS IN HOSPITALIZED PATIENTS.** R.I. Shorr[1], K. Guillen[2], L.C. Rosenblatt[2], K. Walker[2], C.E. Caudle[2], S.B. Kritchevsky[1]; [1]University of Tennessee, Memphis, TN; [2]Methodist Healthcare, Memphis, TN *(Tracking ID #51388)*

BACKGROUND: A fall is the most common adverse event that occurs in hospitalized patients. Sedative hypnotic drug use has been associated with falls in community dwelling older adults and among elderly in long-term care, but the relationship between sedative hypnotic drug use and falls in acute-care settings has not been established.
METHODS: We conducted a matched case-control study of inpatients at a 528-bed community-based urban acute-care hospital. To avoid ascertainment bias associated with incident reports, hospital personnel were instructed to utilize a pager to notify the "fall evaluator" when finding a patient with a suspected fall. Fall evaluators, trained hospital externs or residents, provided full time coverage during the study. The time that a patient fell was designated the index time. Controls were matched to cases by nursing unit and length of stay, and assigned the same index time as the matched case for the purposes of exposure ascertainment. The medication administration record was blindly reviewed for all oral and parenteral medications administered within 24 hours of the index time for cases and controls. Sedative hypnotic drugs included long- and short-acting benzodiazepines, and agents such as chloral hydrate, zolpidem and diphenhydramine. Covariates included age, gender, race, medical record documentation of Parkinson's Disease, stroke, dementia, or falls prior to admission, as well as use of diuretics, opiates, cardiovascular or other psychotropic drugs at the index time.
RESULTS: Of 257 events, 236 patients met our case definition for a fall. 136 (58%) were age 65 or older; 117 (50%) were female. The median hospital day on which the fall occurred was 4 (interquartile range = 2 – 10) and 184 (78%) fell on general medical or surgical units. 110 (46%) cases and 80 (34%) controls received sedative-hypnotic drugs within 24 hours of the index time (univariate OR = 1.8 [95% CI = 1.2 to 2.7]). After adjusting for covariates, the multivariate OR was 1.9 (95% CI = 1.2 to 3.0). The relationship between sedative hypnotic use and falls was largely confined to younger patients. The multivariate odds ratio of sedative hypnotic drug use and falls was 2.2 (95% CI = 0.9 to 5.5) and 0.6 (95% CI = 0.3 to 1.5) in persons younger than age 65, and age 65 or older, respectively.
CONCLUSION: Sedative hypnotic use is associated with falls in hospitalized patients. Patient safety initiatives in hospital settings should encourage the judicious use of sedative hypnotics, and patients who use hypnotic drugs in hospitals should be considered at increased risk for falls. Younger patients are at particularly high risk, which may be related to higher levels of ambulation, or lower levels of vigilance for falls in these patients.

## HEALTH SERVICES RESEARCH

**CAN AN INTERNALLY-FUNDED SMALL GRANT PROGRAM PROMOTE JUNIOR FACULTY SCHOLARLY ACTIVITY?** J.F. Steiner[1], D.M. Booth[1], R.J. Anderson[1]; [1]University of Colorado Health Sciences Center, Denver, CO *(Tracking ID #51980)*

BACKGROUND: The expectation of scholarly activity varies for clinician-educators by academic institution. At our institution, the standard for promotion is about one publication per year. Finding protected time and resources to accomplish this goal is challenging. Our purpose was to provide seed money for this division of predominately clinician-educators to support small research projects which may generate pilot data for an extramurally funded project and/or may generate scholarly activity for their promotion portfolios. We wanted to evaluate the amount of scholarly activity such a program could generate and at what cost.
METHODS: In 1996 the Division of Internal Medicine developed a small grant program to fund start-up research projects for its faculty members from the annual interest generated by its endowment. The funds granted per project were between $10 – 15,000. A committee of 5 senior divisional faculty members reviewed grant proposals & budgets twice a year. A Principal Investigator (PI) could not request her/his salary support on the grant but could pay for a research assistant. We surveyed all faculty, who were awarded a small grant, to assess the academic "outcomes" of this funding.
RESULTS: Twenty-two projects were funded in the amount of $234,548 for the first 5 years. The average size of a grant was $10,661. Some projects were terminated for lack of enrollment or other problems (3) and some were never started (4). 40% of the 15 PI's completing their projects reported that they have submitted posters, abstracts, and/or workshops to a national meeting; 27% have submitted manuscripts; and 47% have articles published or under revision. A total of $139,506 was expended by these 15 PI's who have produced 7 publications to date at a cost of $19,929 per article. For the 7 publications, the interval between receipt of the grant to acceptance or publication was approximately 37 months.
CONCLUSION: An internally-funded small grants program that does not allow for protected time for the PI can stimulate faculty scholarly productivity, especially for clinician-educators who do not have the resources to fund research activity. We expect the cost per article to decrease as submitted manuscripts are published. With an average wait time of 37 months, the grant award would most benefit junior faculty members early in their career if the results are to assist in the promotion process. From this experience, we feel this small grant program is a worthwhile investment of divisional resources and we continue to support this program.

**A COMPARISON OF THE HOSPITAL-LEVEL CONTRIBUTION TO THE INCIDENCE OF 3 MAJOR POSTOPERATIVE OUTCOMES.** A.M. Arozullah[1], W.G. Henderson[2], N. Khan[3], S.F. Khuri[4], J. Daley[5]; [1]VA Chicago Healthcare System, Chicago, IL; [2]Hines VA Cooperative Studies Program Coordinating Center, Hines, IL; [3]University of Illinois College of Medicine, Chicago, IL; [4]VA Boston Healthcare System, West Roxbury, MA; [5]Massachusetts General Hospital/Partners Healthcare, Boston, MA *(Tracking ID #52031)*

BACKGROUND: Postoperative outcomes, especially mortality, are used for comparing hospital quality of care. However, the proportion of outcome variation that is attributable to hospitals versus patients is not well known. We used mixed-effects models, with and without patient-level risk adjustment, to estimate and compare the hospital contribution to 30-day postoperative mortality, postoperative pneumonia (POP), and mortality after POP (failure to rescue).
METHODS: We selected patients undergoing non-cardiac surgery at 100 VA hospitals who were prospectively enrolled in the VA National Surgical Quality Improvement Program from 9/1/96 – 8/31/99. Mortality was defined as death from any cause within 30 days of surgery. POP was defined using the CDC definition of nosocomial pneumonia postoperatively. Failure to rescue was defined as death after developing POP within 30 days of surgery. Logistic regression models were used to determine significant ($p < 0.05$) preoperative and operative risk factors. Mixed effects logistic regression models were used to estimate the proportion of outcome variation attributable to hospitals by including hospital as a random effect with and without patient-level risk adjustment.
RESULTS: 359,976 patients were used for POP and mortality analyses (POP rate 1.5%, mortality rate 2.3%). 5098 POP patients were used for failure to rescue analyses (mortality rate 18.1%). Hospitals accounted for 5.5% (95% CI, 4.2% – 7.2%) of the variation in POP, 2.6% (95% CI, 1.3% – 5.2%) for failure to rescue, and 1.6% (95% CI, 1.1 – 2.3%) for mortality. After adjusting for preoperative risk factors, the hospital contribution decreased to 5.2% (95% CI, 4.1% – 6.6%) for POP, increased to 2.7% (95% CI, 1.3% – 5.5%) for failure to rescue, and decreased to 1.0% (95% CI, 0.7 – 1.5%) for mortality. After adjusting for preoperative and operative risk factors, the hospital contribution decreased to 5.0% (95% CI, 4.1 – 6.2%) for POP, to 2.6% (95% CI, 1.2 – 5.5%) for failure to rescue, and remained 1.0% (95% CI, 0.7 – 1.5%) for mortality.
CONCLUSION: Although postoperative mortality is commonly used as a hospital-level quality measure, hospitals accounted for less variability in mortality rates compared to either POP or failure to rescue. Evaluating POP and failure to rescue rates, in addition to mortality, may improve future hospital quality of care evaluations.

**CHANGES IN PHYSICIAN ATTITUDE TOWARD INPATIENT CARE AND THE HOSPITALIST MODEL AFTER IMPLEMENTATION OF A VOLUNTARY HOSPITALIST SERVICE.** A.D. Auerbach[1], M. Aronson[2], R.B. Davis[2], R.S. Phillips[2]; [1]University of California, San Francisco, San Francisco, CA; [2]Beth Israel Deaconess Medical Center, Boston, MA *(Tracking ID #50891)*

BACKGROUND: Hospitalist systems have been viewed as a challenge to traditional clinical practice, with areas of greatest concern being doctor-patient relationships and physicians' career satisfaction. However, limited empiric data exist to describe the true effects on individual physicians.
METHODS: We mailed identical surveys to internal medicine board-certified physicians affiliated with Beth Israel Deaconess Medical Center (Boston, Massachusetts) 2 months before and 3 years after implementation of a voluntary hospitalist service in July 1998. Individual physician's responses to survey items regarding attitude toward inpatient care and the hospitalist model in each survey were then compared. We used multivariable models to determine physician factors associated with attitude.
RESULTS: Of physicians surveyed in 2001, 236 (69%) responded; 135 (61% of 2000 respondents) also responded in 1998. The median age of respondents in 2000 was 46.4 years (standard deviation 10.8); 157 (66.5%) were male, 146 (61.9%) identified themselves as primary care providers, and more than half continued to provide care to all of their hospitalized patients. Compared to 1998, in 2001 there was more agreement that 'caring for inpatients is an inefficient use of my time' (0.59 points more agreement, $p < 0.001$), and that 'use of a hospitalist service improves quality of care' (0.28 points more agreement, $p = 0.002$). Compared to 1998, in 2001 more physicians disagreed that 'use of a hospitalist service diminishes physician career satisfaction' (0.69 points more disagreement, $p < 0.001$), and that 'use of the hospitalist service adversely affects the doctor-patient relationship' (0.40 points more disagreement, $p < 0.001$). In contrast, there were no differences in questions regarding patient satisfaction with care, physicians' ability to stay abreast of medical knowledge, or their overall satisfaction with their medical practice. In multivariable models of 2001 responses, older physicians were more favorable toward the hospitalist model; those with busier inpatient practices were more negative ($p < 0.05$ for each). Physician specialty or being a primary care provider was not associated with attitudes toward the hospitalist model.
CONCLUSION: Physician attitude toward a voluntary hospitalist model improved following experience with a hospitalist system, with sentiments related to its impact upon career satisfaction and relationships with patients changing most positively. These findings suggest that initial debate may have overestimated the negative impact of hospitalist systems upon physician practice. Future research should seek to determine the hospitalist model's true effects upon patient satisfaction and quality of care.

**IMPLEMENTATION OF A VOLUNTARY HOSPITALIST SERVICE AT A COMMUNITY TEACHING HOSPITAL: IMPROVING CLINICAL EFFICIENCY AND PATIENT OUTCOMES.** A.D. Auerbach[1], R.M. Wachter[1], J.A. Showstack[1], P. Katz[1], R.B. Baron[1], L. Goldman[1]; [1]University of California, San Francisco, San Francisco, CA *(Tracking ID #51209)*

BACKGROUND: Previous investigations of the hospitalist model's effects on resource use and patient outcomes have focused on academic centers or have employed short periods of follow-up. These analyses sought to determine effects of hospitalist care on resource use and patient outcomes in a community based hospital, and whether these effects change over time.

METHODS: We examined administrative data of 5308 patients cared for by community or hospitalist physicians in the two years following implementation of a voluntary hospitalist service. Length of stay, costs, 10-day readmission rates, use of consultative services, in-hospital mortality, and mortality at 30 and 60 days were then compared. To account for confounding effects, we employed multivariable models including adjustment for patient sociodemographics and case mix measures; our modeling process also used a propensity score to account for non-random allocation of patients to hospitalists.
RESULTS: One hundred thirteen community physicians in private practice and 5 hospitalist physicians admitted patients to Mount Zion Hospital during this study. Hospitalists cared for far more inpatients than community-based physicians during these two years (324 patients vs. 29 patients, p < 0.001). Patients of hospitalists were younger than community physicians' patients (65.4 years vs. 70.4, p < 0.001), more likely to be black (33.3% vs. 17.9%, p < 0.0001), have Medicaid insurance (25.1% vs. 10.1%, p < 0.0001), or receive intensive care (19.9% vs. 15.8%, p = 0.0002). After adjustment in multivariable models, length of stay (LOS) and costs were not different in the first year. In Year 2, patients of hospitalists had shorter LOS (0.61 day shorter, p = 0.002) and lower costs ($822 lower, p = 0.002). There were no differences in use of consultative services or 10-day readmission rates between the two groups. However, during the two years of this study patients of hospitalists had lower risk of death in-hospital (adjusted relative hazard 0.71, 95% CI 0.54, 0.93), and at 30 and 60 days of follow-up. This mortality difference persisted in analyses limited to specific age groups, groups of diagnoses, or strata of propensity score.
CONCLUSION: Use of a voluntary hospitalist service at this community-based teaching hospital produced reductions in LOS and costs that became statistically significant in Year 2. A mortality benefit extending beyond hospitalization was noted in both years. Future investigations are needed to understand the mechanisms by which hospitalists increase clinical efficiency and whether they improve the quality of care.

**IMPACT OF PAIN ON DEPRESSION TREATMENT EFFICACY.** M.J. Bair[1], G.J. Eckert[1], R.L. Robinson[2], P.E. Stang[3], K. Kroenke[1]; [1]Regenstrief Institute, Indiana University, Indianapolis, IN; [2]Eli Lilly, Indianapolis, IN; [3]Galt Associates, Inc., Blue Bell, PA *(Tracking ID #46164)*

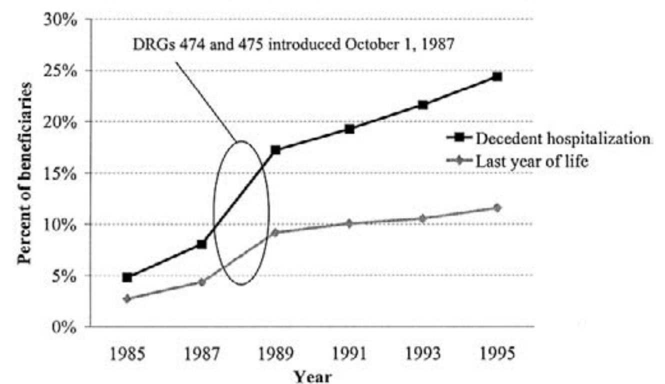
BACKGROUND: Although pain and depression commonly co-occur, the impact of pain on depression outcomes is not clear. Therefore, we explored the effect of pain on depression treatment efficacy.
METHODS: Data were analyzed from the ARTIST study, a randomized clinical trial in 573 depressed primary care patients of SSRI antidepressant effectiveness. The primary outcome measure was depression treatment failure defined as a SCL-20 depression severity score >1.3 at 3 months. Pain was assessed with both the SF-36 bodily pain (SF-BP) and Patient Health Questionnaire (PHQ) pain scales. Pain was considered mild, moderate, or severe in patients whose pain scores were 0.5, 1.0, or 2.0 standard deviations below the group mean for the specific pain scale. Other health-related quality of life (HRQL) domains were examined with SF-36 and other RAND measures. Logistic regression analysis was used to examine the independent effect of baseline pain on depression treatment failure, while controlling for patient demographics and treatment group. Linear regression analysis was used to examine the effect of pain on secondary HRQL outcomes, controlling for the same factors.
RESULTS: Patients were 79% female, 84% Caucasian, and had a mean age of 46 years. The mean SCL-20 baseline score was 1.66 while the mean SF-BP was 59.6. 81% of patients at baseline experienced pain: 37% mild, 30% moderate and 14% severe pain. Although by 3 months after randomization to SSRI treatment the mean SCL-20 had substantially improved to 0.74, 24% of patients were considered treatment failures (i.e., SCL-20 score still >1.3). There was an incremental adverse effect of baseline pain on depression outcome: the multivariate odds ratio for treatment failure was 1.2 (1.1 – 1.4) for mild pain, 1.6 (1.3 – 2.2) for moderate pain, and 2.7 (1.6 – 4.8) in those with severe pain. A similar association was found using the PHQ: 1.2, 1.4, and 2.0 in those with mild, moderate and severe pain, respectively. Pain was also associated with worse outcomes in vitality (p = .0002), positive well being (p = .02), sleep (p = .03), role limitations (p < .001), and social (p = .002) and work function (p = .03).
CONCLUSION: Pain is a common co-morbid condition in primary care patients with depression and its severity is strongly associated with depression treatment failure. Future studies should assess if adequate treatment of pain as well as depression may be necessary to achieve optimal outcomes.

**ANGIOTENSIN CONVERTING ENZYME INHIBITOR USE IN ADULTS WITH DIABETES AND HYPERTENSION IN THE U.S.** J.E. Bajaj[1], A.R. Robinson[1]; [1]University of Colorado Health Sciences Center, Denver, CO *(Tracking ID #51661)*

BACKGROUND: The importance of controlling hypertension in persons with diabetes is well established. Many large trials have demonstrated the benefits of angiotensin converting enzyme inhibitors (ACEI) in preventing nephropathy and decreasing cardiovascular morbidity and mortality in this population.
METHODS: We analyzed data from the National Ambulatory Medical Care Survey (NAMCS) for 1993 – 1999. All office visits of adults with diabetes and hypertension were analyzed for type of antihypertensive medication used. This group was also compared to non-diabetics with hypertension. Differences in demographic and physician characteristics were analyzed using chi-square tests. Independent predictors of ACEI use were evaluated using multiple logistic regression. Patterns of angiotensin II receptor blocker (ARB) use were also examined for 1996 – 1999.
RESULTS: In 1999, ACEI's were prescribed for 34.4% of adults with diabetes and hypertension, which is unchanged from 33.6% in 1993 (p = 0.86). ACEI use was significantly higher for this group than for those with hypertension alone (34.4% vs. 22.2%, p < 0.001). There were no differences in ACEI use by age, race, gender, region of the country, insurance status, or type of physician seen. Beta-blocker use was associated with a lower likelihood of ACEI use (OR – 0.6, 95% CI – 0.3,0.9), while use of a diuretic was associated with a higher likelihood of ACEI use (OR – 1.5, 95% CI – 1.1,2.0). In 1999, 6.2% of patients with diabetes and hypertension were taking an ARB, and 40.6% were taking either an ACEI or an ARB, which is significantly higher than in patients with hypertension alone (40.6% vs. 28.8%, p < 0.001).
CONCLUSION: Less than half of all adults with diabetes and hypertension in this nationally representative sample were being treated with ACEI's in 1999, and rates of ACEI use have not increased significantly since 1993. We found no characteristics of patients or providers that predicted higher likelihood of ACEI use. There are encouraging signs, however. The rate of ACEI use is higher among hypertensives with diabetes compared to those without, and race or age does not appear to influence ACEI use. ARB use is also higher in this population than in non-diabetics, but benefits comparable to ACEI's for this class of drugs have not been established. Given the proven benefits of ACEI use in adults with hypertension and diabetes, efforts should be focused on increasing ACEI use in this population.

**SPURIOUS UTILIZATION USING ADMINISTRATIVE DATA.** A.E. Barnato[1]; [1]University of Pittsburgh, Pittsburgh, PA *(Tracking ID #50328)*

BACKGROUND: Health services researchers increasingly rely on administrative claims for data on utilization, cost, and outcomes. These data are attractive because they are readily available and inexpensive, and generally coded similarly across hospitals and regions. However, changing coding practices driven by reimbursement incentives can lead to spurious findings.
METHODS: The data included inpatient claims for 365 days prior to death for a 20% random sample of all Medicare beneficiaries who died in 1985, 1987, 1989, 1991, 1993, and 1995. I categorized each of the ICD-9 procedure codes into one of 228 categories. In addition to a 2000 ICD-9 coding manual, I cross-referenced old manuals in order to capture discontinued codes (category "intubation or tracheostomy" included codes 31.1 – 31.29, 31.74, 96.01 – 96.05, 96.70 – 96.72, 93.92, and 93.93). All results are age-, sex-, and race-adjusted to the 1995 decedent population.
RESULTS: The percent of Medicare beneficiaries who underwent intubation or tracheostomy in the last year of life increased from 2.7% in 1985 to 11.6% in 1995, with a dramatic increase between 1987 and 1989. The proportion of patients who died in an acute care hospital decreased over the decade from 40.3% to 33.6%, but among those who died in the hospital 24.3% underwent intubation or tracheostomy in 1995, up from 4.8% in 1985. Before 1987 there was no diagnosis-related group (DRG) specific to patients who were mechanically ventilated or who had a temporary or permanent tracheostomy. For FY 1988, DRGs were added for patients with a respiratory system diagnosis and tracheostomy (474) or with ventilatory support (475). Requests followed for DRGs for ventilated patients with non-respiratory diagnoses, and for FY 1991 DRGs 482 (patients with disorders of the mouth, larynx, or pharynx with tracheostomy) and 483 (all other patients with tracheostomy) were added, and 474 was deleted (now covered in 483).




CONCLUSION: The increase in intubation and tracheostomy rates among Medicare decedents between 1987 and 1989 may be partially attributable to improvements in coding of the relevant procedures due to the financial incentive of improved reimbursement rates under newly introduced DRGs. Health services researchers must take care to consider alternative explanations for observed trends in administrative claims, particularly when they are non-linear over time.

**FACTORS UNDERLYING VARIATION IN MEDICARE EXPENDITURES: GETTING MORE FOR LESS?** W.A. Barry[1], G.E. Rosenthal[1]; [1]Iowa City VAMC and the University of Iowa Hospitals and Clinics, Iowa City, IA *(Tracking ID #50570)*

BACKGROUND: Prior analyses have noted marked variation in Medicare expenditures across individual states. In spite of the important health policy implications (e.g., setting capitation rates for patients in Medicare managed care plans) of variations in expenditures, few analyses have examined factors that may underlie the variation. The purpose of the current study was to examine associations between state-level expenditures and provider and population characteristics, and associations between expenditures and recently published state-level quality of care rankings.
METHODS: State Medicare expenditures for 1998, state-level quality rankings, population demographics, hospital and physician characteristics, geographic practice costs, and health care utilization data were obtained from the CMS (formerly HCFA), US Bureau of the Census, and AHA. Quality rankings were based on performance in 22 process of care measures linked to better patient outcomes. Analyses examined correlations between Medicare expenditures per enrollee and quality rankings, geographic practice costs, death rates, and 51 other factors that

were categorized into 3 domains: population demographics; provider characteristics; and utilization patterns. Initial stepwise linear regression analyses identified factors related to ($p < .1$) expenditures in each of the 3 domains. These factors were then included in a final regression model.
RESULTS: Median Medicare expenditures per enrollee were $4741, and varied more than 2-fold across the 50 states (range, $3189–$7389). In univariate analyses, expenditures were inversely correlated with quality rankings [$R = -.43$, $p < .01$] and positively correlated with overall death rates and geographic practice costs [$R = .27$, $p = .06$ and, $R = .50$, $p < .001$]. Further analyses identified 3 demographic factors (per capita income [$R = .34$], % of population who did not graduate high school [$R = .39$], and population per square mile [$R = -.62$]); 4 provider characteristics (primary care physicians per capita [$R = .34$], resident physicians per capita [$R = .60$], hospitals per capita [$R = -.44$], and % of hospitals that are urban [$R = .70$]); and 2 utilization variables (ER visits per capita [$R = .33$] and mean length of stay [$R = -.35$]). Of the above 12 variables, 6 were significant ($p < .05$) in the final regression model. Medicare quality rankings remained negatively correlated, as did population per square mile. Geographic practice costs, hospitals per capita, % of hospitals that are urban, and ER visits per capita were positively correlated. The final model explained 74% of the variance in expenditures.
CONCLUSION: Much of the variation in Medicare expenditures across states is explainable by provider and population-specific factors, geographic differences in practice costs, and healthcare utilization patterns. Interestingly, after adjusting for these factors, states with higher expenditures also had lower quality rankings, suggesting that there is room for improving the value of care in Medicare enrollees.

**DOES PHYSICIAN INVOLVEMENT WITH MANAGED CARE AFFECT THE RELATIONSHIP BETWEEN PRACTICE GUIDELINES AND QUALITY OF CARE?** J.M. Bartell[1], M.A. Smith[1]; [1]University of Wisconsin, Madison, WI *(Tracking ID #50575)*

BACKGROUND: Formalized practice guidelines are widespread, but their success in practice has been limited. We hypothesize that the level of physician involvement with a single managed care organization (MCO) affects the relationship between practice guidelines and quality of care and that this relationship may be different for specialists and primary care physicians (PCPs).
METHODS: Study data was from the 1996–97 Community Tracking Study, a nationally-representative, telephone-administered survey of 12,528 non-federal, direct patient care physicians. Data were adjusted for possible confounders using multiple linear regression.
RESULTS: Managed care involvement with a single MCO was somewhat modest: 55.6% of PCPs and 68.1% of specialists reported that less than 20% of their revenue came from their largest managed care contract. After adjustment, there was a significant negative association between the impact of guidelines and perceived quality of care for specialists who derived <20% of their revenue from their largest managed care contract. For specialists who derived 20% or more of their revenue from their largest contract and for all PCPs, there was no relationship between the impact of guidelines and perceived quality of care.
CONCLUSION: Our data suggest that for specialists, but not PCPs, there is a threshold in physician involvement with managed care below which practice guidelines act as barriers to high quality care. The precise organizational relationships that promote successful guideline implementation should be further explored.

**Relationship Between the Impact of Guidelines on Practice and Perceived Quality of Care for Different Levels of Managed Care Involvement for Specialists and PCPs, Adjusted**

| % Revenue From Largest Contract | Beta (Specialists) | 95% CI (Specialists) | Beta (PCPs) | 95% CI (PCPs) |
|---|---|---|---|---|
| 0–4% | −0.10 | (−0.15, −0.04) | −0.10 | (−0.15, −0.04) |
| 5–9% | −0.08 | (−0.13, −0.04) | −0.03 | (−0.08, 0.02) |
| 10–14% | −0.07 | (−0.11, −0.03) | −0.02 | (−0.06, 0.03) |
| 15–19% | −0.05 | (−0.09, −0.01) | 0.00 | (−0.04, 0.03) |
| 20–24% | −0.04 | (−0.08, 0.01) | 0.01 | (−0.03, 0.04) |
| 25–49% | −0.02 | (−0.07, 0.03) | 0.02 | (−0.02, 0.06) |
| 50–74% | 0.00 | (−0.07, 0.06) | 0.03 | (−0.01, 0.08) |
| 75–100% | 0.01 | (−0.06, 0.08) | 0.04 | (−0.01, 0.10) |

**TIME IS A TERRIBLE THING TO WASTE.** N.A. Bickell[1], C. Bodian[1], M. Rojas[1], A.H. Aufses[1], M.R. Chassin[1]; [1]Mount Sinai School of Medicine, New York, NY *(Tracking ID #51219)*

BACKGROUND: The relationship between time to treatment and risk of rupture from appendicitis has not been quantified. We undertook this retrospective study to establish the effect of time between symptom onset and surgery on risk of rupture and to identify factors that affect time to treatment.
METHODS: Patients discharged with a diagnosis of appendicitis in 1996–1998 at 2 urban tertiary care hospitals were randomly selected (244 of 731). Of these, 20 had a normal appendix, 4 had no appendectomy and 1 medical record could not be located. We collected detailed demographic, clinical and time data for the remaining 219 patients from hospital inpatient and outpatient records and from 85 physician offices outside the hospital practices. We calculated conditional probabilities to assess the risk of rupture with passing time and used linear regression to evaluate the independent effects of various factors on time to treatment.
RESULTS: Thirty-six of 219 patients had a ruptured appendix (16%). Median age was 37.9 years; 63% of patients were minority. There was no significant racial, ethnic or insurance disparity in risk of rupture. Time to treatment ranged from 5.9 hrs to 666.6 hrs (median = 37.9 hrs). Risk of rupture for patients treated within the following time intervals was:

| <12hr | 12-23hr | 24-35hr | 36-59hr | 60-95hr | 96-191hr | 192+hr |
|---|---|---|---|---|---|---|
| 0% | 0.6% | 2% | 10% | 21% | 42% | 73% |

Time to treatment was shorter for patients with a classic presentation of appendicitis and was longer for those for whom there was diagnostic uncertainty or who were sent for CT scan.
CONCLUSION: Increasing time from symptom onset to treatment increases the risk of rupture from appendicitis. To reduce risk of rupture, clinicians should assess patients' duration of symptoms and expedite care accordingly.

**RELIGION AND HEALTH STATUS: A SURVEY OF PUBLIC HOUSING RESIDENTS.** J.P. Block[1], W.P. Fisher[1], J.A. Devine[2], K.B. Desalvo[1]; [1]Tulane University School of Medicine, New Orleans, LA; [2]Tulane University, New Orleans, LA *(Tracking ID #51551)*

BACKGROUND: Research has demonstrated a link between religion and improved health outcomes. We used data from a survey of public housing residents to test the hypothesis that religiosity or religious behaviors would be associated with self-reported health status.
METHODS: Two hundred, sixty residents of the CJ Peete Housing Development were surveyed in person by trained interviewers who were residents of the development. The survey asked detailed questions about health status and religion, including frequency of prayer, frequency of religious service attendance, and self-reported religiosity. Health status question responses were transformed into two subscale summary measures as Rasch-scaled logits—social and physical functioning. With linear regression, we assessed the association of religion with physical and social functioning controlling for potential confounders (age, gender, education, employment, annual visits to the health care system, and income).
RESULTS: The mean age of respondents was 41 [range 18–96], and the median income was $666 [$50 – $4747]. 91% were female, 56% were not working, and all were Black. 40% of residents reported being very religious, 53% attended religious services at least 2–3 times monthly, and 65% prayed several times daily. Bivariate analysis revealed a significant association between increased prayer and worse physical functioning ($p = 0.012$) and improved social functioning ($p = 0.001$). Increased religious service attendance was related only to improved social functioning ($p = 0.032$), and self-reported religiosity was not associated with either subscale. Frequent use of prayer was associated with increased age ($p < 0.000$) and increased number of outpatient visits ($p < 0.000$). Prayer ($p = 0.001$) and religious service attendance ($p = 0.047$) remained independent predictors of social functioning in linear regression models after controlling for confounding; prayer continued to be significant when included in the model with religious service attendance.
CONCLUSION: Self-perceived religiosity was not predictive of social or physical functioning in this population. However, increased religious behaviors, especially praying, were strongly correlated with improved social functioning. The independent relationship between prayer and the social functioning scale, which has several questions inquiring about the availability of support, demonstrates that prayer is an active behavior associated with asking for help. Physicians and other medical professionals should inquire about sources of support and recognize the use of prayer as a potentially important support mechanism.

**RECEIPT OF GOVERNMENT BENEFITS AND HEALTH STATUS.** J.P. Block[1], W.P. Fisher[1], J.A. Devine[1], J. Morris[1], A. Yeoman[1], K.B. Desalvo[1]; [1]Tulane University, New Orleans, LA *(Tracking ID #51635)*

BACKGROUND: Research has shown that receipt of means-tested government benefits predicts poor global health status. We sought to determine whether more detailed self-reported health status measures were associated with the receipt of government benefits in public housing residents.
METHODS: Two hundred, sixty residents were surveyed in person by trained interviewers who were also residents of the development. The survey asked detailed questions about sources of income, including government benefits. Health status questions included a global health assessment and social and physical functioning questions that were transformed into summary measures as Rasch-scaled logits. In multivariate regression, we assessed the association of government benefit receipt with health status controlling for potential confounders (age, gender, education, employment, health care utilization, and income). We then stratified the analysis to evaluate health status among subsets of government benefit recipients—those receiving means-tested benefits (related to income—Medicaid, AFDC, Food Stamps, WIC, SSI) or entitlement benefits (not related to income—Social Security and Disability).
RESULTS: The mean age of respondents was 41 [range 18 – 96]. All were Black, 91% were female, 42% had no high school degree or GED, and 57% were not working. 77% received government benefits—65% means-tested benefits and 24% entitlement benefits. Benefit recipients were older ($p = 0.019$), on more prescriptions ($p = 0.011$), and had more outpatient visits (0.002) than non-recipients. With respect to health status, benefit recipients had lower physical functioning measures ($p = 0.001$), social functioning measures ($p = 0.015$), and global health status ($p = 0.001$) than non-recipients. Entitlement benefit receipt was associated with worse physical functioning ($p < 0.000$) and global health status ($p < 0.000$), but means-tested benefit receipt was not associated with any health status measure. In multivariate regression, government benefit receipt was no longer significantly related to health status after controlling for confounding. The only independent relationship remaining was between receipt of entitlement benefits and worse physical functioning ($p = 0.007$).
CONCLUSION: Receipt of government benefits in a housing development population is associated with decreased health status; however, confounders explain most of this reduction. Receipt of entitlement benefits is independently associated with decreased physical functioning. These results contrast with previous research that has found an independent association between means-tested benefits and decreased health status. Perhaps in a public housing population, additional government benefits do not lead to social stigma—a proposed intermediary between benefits and poor health status—above that of public housing.

**SURVEILLANCE SYSTEMS FOR BIOTERRORISM: A SYSTEMATIC REVIEW.** D.M. Bravata[1], K. Mcdonald[1], W.M. Smith[1], C. Rydzak[1], H. Szeto[1], D. Buckeridge[1], C. Haberland[1], M.B. Dangiolo[1], J. Graham[1], D.K. Owens[1]; [1]Stanford University, Stanford, CA *(Tracking ID #50683)*

BACKGROUND: Surveillance systems for the detection of covert bioterrorist attacks must rapidly identify biothreat agents with high sensitivity and specificity so that public health officials can initiate interventions to prevent additional morbidity and mortality.

METHODS: For an evidence report funded by AHRQ, we attempted to identify all potentially relevant information technologies that may serve the information needs of clinicians and public health officials in the event of a bioterrorist attack. We developed search strategies to identify articles in Medline from 1985 to April 2001, 4 other databases of articles, and governmental and non-governmental websites.
RESULTS: We reviewed 16,888 citations of peer-reviewed articles, 1,175 websites of government agencies, and 7,685 non-governmental websites. From these, we identified 87 surveillance systems that collect the following data: syndromal surveillance data (7 systems), influenza-related data (10 systems), clinician reports (6 systems), laboratory and antimicrobial resistance data (23 systems), hospital-based infection data (15 systems), food-borne illness data (9 systems), zoonotic illness data (5 systems), and other types of surveillance data (12 systems). We also identified 7 systems that collect a variety of surveillance data, perform analyses and present this information to decision makers (typically incident commanders responsible for the coordination of responses to a bioterrorist attack). Of the 87 surveillance systems, 15 were designed specifically for bioterrorism and 17 have been clinically evaluated.
CONCLUSION: Few information technologies have been specifically designed for the collection and analysis of surveillance data for the early detection of a bioterrorist event. However, numerous existing systems collect relevant data that could be incorporated into a surveillance system for bioterrorism. Current evaluations are insufficient to characterize the sensitivity, specificity, or timeliness of these systems.

**ECHOCARDIOGRAPHY IN ACUTE ISCHEMIC STROKE PATIENTS.** D. Bravata[1], N. Kim[1], J. Concato[1], L.M. Brass[1]; [1]Yale University, New Haven, CT *(Tracking ID #52422)*

BACKGROUND: The objectives of this study were to describe the use of echocardiography in acute ischemic stroke patients in routine clinical practice and to evaluate the association between echocardiography results and the prescription of anticoagulation.
METHODS: We conducted an observational cohort study by reviewing the medical records of patients with acute ischemic stroke at ten acute care hospitals in Connecticut during the period May 1, 1996 – December 31, 1998.
RESULTS: Of the 119 acute ischemic stroke patients, 58 (49%) received an echocardiograph; 10/119 (8%) received a transesophageal echocardiograph with 4/119 (3%) receiving both a transesophageal and a transthorasic examination; and 48/119 (40%) receiving only a transthorasic echocardiograph. Patients who received any echocardiograph were more likely to be a full code (53/58, 91% vs. 42/61, 69%; p = 0.002), were less likely to have a history of stroke (3/58, 5% vs. 22/61, 36%; p = 0.001), were more likely to have rales on admission physical examination (13/58, 22% vs. 4/61, 7%; p = 0.01), and to have a greater stroke severity (National Institute of Health Stroke Severity Score mean ± standard deviation 14 ± 7 vs. 11 ± 7; p = 0.01). The most frequent echocardiographic findings were mitral regurgitation (31/58, 26%), tricuspid regurgitation (23/58, 19%), left atrial enlargement (20/58, 17%), systolic dysfunction (15/58, 13%), hypertrophy (15/58, 13%), and aortic sclerosis (15/58, 13%). A total of six patients (6/119, 5%) were found to have a patent foramen ovale or atrial septal defect: all were older than 50 years (age range 51 – 84 years; median 75 years), 6/6 (100%) had a history of hypertension, and 3/6 (50%) presented with rales. Two patients had intracardiac thrombus and three other patients had intracardiac "smoke." Of these five patients: 2/5 (40%) had a history of congestive heart failure, 1/5 (20%) had a history of atrial fibrillation, 2/5 (40%) had a history of myocardial infarction, 1/5 (20%) had rales on admission, 1/5 (20%) had atrial fibrillation on admission electrocardiogram, and 2/5 (40%) had ST-segment depression on admission electrocardiogram. Patients who were discharged alive and who were not taking warfarin, intravenous heparin or low molecular weight heparin on admission (N = 91) were considered po-tentially eligible candidates for anticoagulation. Forty-five of the 58 echocardiographs (78%) were performed in the 91 anticoagulation candidates. A total of 31/91 (34%) of the anticoagula- tion candidates were discharged with anticoagulation; 21/31 (68%) had had an echocardiograph.
CONCLUSION: Echocardiography is used commonly in acute ischemic stroke patients and most echocardiographs are obtained in potentially eligible anticoagulation candidates. The majority of patients who receive a new prescription for anticoagulation receive an echocardiograph. Patients presenting with rales on admission often receive an echocardiograph.

**LOW-CARBOHYDRATE DIETS: A SYSTEMATIC REVIEW OF THEIR SAFETY AND EFFICACY.** D.M. Bravata[1], L. Sanders[2], J. Huang[1], H.M. Krumholz[2], I. Olkin[1], C. Gardner[1], D. Bravata[2]; [1]Stanford University, Palo Alto, CA; [2]Yale University, New Haven, CT *(Tracking ID #52074)*

BACKGROUND: Low-carbohydrate diets have been popularized without rigorous evidence of their safety or efficacy. Our objective was to evaluate patterns of change in weight, serum lipids, serum glucose, and blood pressure among adult outpatients on low-carbohydrate diets.
METHODS: We performed Medline and bibliographic searches for articles published between January 1966 and July 2000. Studies were included if: they reported data from adult recipients of low-carbohydrate diets; reported both grams of carbohydrate per day and total calories consumed per day; and were written in English. Studies were excluded if subjects were hospitalized, if the diet was less than four days, or if it provided 500 kcal or less per day. We combined studies to calculate summary changes in outcome variables over time using random effects models. We used weighted least squares regression to assess the association between dietary and outcome variables.
RESULTS: Literature searches identified 523 potentially relevant articles. We report data on 2216 subjects from 73 included studies. These studies were heterogeneous with respect to design (17 RCTs, 14 randomized crossover studies, 15 controlled trials, 7 sequential diet evaluations, and 20 observational studies), carbohydrate content (median: 148g/d; range: 0 to 668g/d), caloric content (median: 1544 kcal/day; range: 525 to 3871 kcal/day), and diet duration (median: 42 days; range: 4 to 365 days). Only one study evaluated low carbohydrate diets in subjects with a mean age greater than 50. The results of the weighted least squares regression demonstrated that weight loss was significantly associated with fewer calories (p = 0.0008), longer diet length (p < 0.00001), greater baseline weight (p = 0.0004), younger mean age (p = 0.0001), and male gender (p = 0.03). However weight loss was not significantly associated with grams of carbohydrates (p = 0.3). Additionally, low carbohydrate diets were not significantly associated with a decrease in total cholesterol, fasting serum glucose, or systolic blood pressure however they were associated with a decrease in serum triglycerides (p = 0.01).
CONCLUSION: The efficacy and safety of low carbohydrate diets have not been adequately evaluated in subjects over the age of 50. Among younger subjects, low-carbohydrate diets result in weight loss without significant adverse effects on lipids, glucose, or blood pressure. However, carbohydrate restriction is a less significant predictor of weight loss than caloric restriction. It is unknown if this weight loss can be sustained beyond the intervention period.

**ADHERENCE TO GUIDELINES REGARDING PULMONARY FUNCTION TEST IN PATIENTS WITH CHRONIC OBSTRUCTIVE PULMONARY DISEASE.** P.O. Bridevaux[1], D.H. Au[2], V. Fan[2], M. Mcdonell[2], S.D. Fihn[2]; [1]VA Puget Sound Health Care System, HSR&D, Seattle, WA; [2]University of Washington, Seattle, WA *(Tracking ID #51910)*

BACKGROUND: Current accepted guidelines on the management of chronic obstructive pulmonary disease (COPD) recommend pulmonary function testing (PFT) to confirm the diagnosis and severity of COPD. The objective of this study was to determine the factors associated with obtaining PFTs among patients with symptomatic COPD receiving care in the general internal medicine (GIM).
METHODS: We performed a cross-sectional study using data obtained from the Ambulatory Care Quality Improvement Project (ACQUIP), a prospective study conducted in the primary care clinics of 7 geographically diverse Veterans Affairs (VA) medical centers. We identified 3,027 patients over the age of 40, with self reported obstructive lung disease, in- or outpatient ICD9 codes for COPD, and treatment with inhaled bronchodilators during the first year after entry into the ACQUIP study. Patients completed a disease-specific quality of life instrument, the Seattle Obstructive Lung Disease Questionnaire (SOLDQ). Patients were defined as having PFTs if they had a visit to the pulmonary function lab during the 4 year observational period.
RESULTS: Subjects were Caucasian (84%) men (98%) and had a mean age of 66 years. Prior or current smoking history was common (92% ) with 61% of patients self reporting being former smokers and 31% reporting current tobacco use. Common self-reported comorbidities included ischemic heart disease (20 %), congestive heart failure (4%), depression (31%). Of patients who self reported COPD, had treatment and an ICD9 diagnosis, only 57% also had a visit to the PFT lab. The factors associated with having been referred for PFTs were VA Hospital site (p < 0.000), shorter length of care at primary care clinic (p < 0.000), older age (p < 0.001), care obtained only from the VA (p < 0.000), and absence of ischemic heart disease (p < 0.000). After adjusting for age, site, length of care, and care received outside the VA, patients who had a myocardial infarction (OR 0.71, 95% CI 0.58, 0.85) or who currently smoked (OR 0.79, 95% CI 0.64, 0.96) were significantly less likely to have PFTs. There was a trend towards increased pulmonary function testing in the most symptomatic patients, indicated by physical function score of less than 20 on the SOLDQ (OR 1.19, 95% CI 0.98, 1.45).
CONCLUSION: Because COPD is a chronic condition that frequently requires lifelong therapy, accuracy in diagnosis is important. These results indicate that even among a highly selected group of elderly men followed in GIM clinics, most of whom were past or current smokers, only about one half had had PFTs performed during 4 year study period. Although many physicians may rely upon a clinical diagnosis of COPD, studies to validate this practice are needed. Without validating clinical criteria, pulmonary function testing remains the accepted standard for a diagnosis of COPD.

**PATIENT SATISFACTION IS UNRELATED TO PHYSICIAN PRODUCTIVITY.** D.L. Bronson[1], K.S. Franco[2], C. Kapoor[3], E. Pomiecko[3], R. Juhasz[3], R. Maxwell[3]; [1]Div. of Regional Medical Practice, The Cleveland Clinic Foundation, Cleveland, OH; [2]Dept. of Psychiatry, The Cleveland Clinic Foundation, Cleveland, OH; [3]Div. of Regional Medical Practice, Cleveland, OH *(Tracking ID #45981)*

BACKGROUND: Patients who are satisfied with their care are more likely to return for follow-up and achieve desired outcomes. Productivity pressures on generalist physicians may lead to diminished patient satisfaction (PS) with the clinical encounter. We have looked at the relationship between measured (PS) and physician productivity (PP) in the setting of a community based multi-specialty group practice.
METHODS: PS was measured with the 9 item Visit Specific Questionnaire in 8656 patients following encounters with 78 generalist physicians, 9 OB/Gyn, and 11 dermatologists in 2000 (minimum 30 patients/physician). The average number of patients was 86 ± 53. The average overall PS for each physician was correlated with PP as measured by billed relative value units (RVU) in the previous 12 month period using Spearman correlation coefficients and 95% confidence intervals (CI).
RESULTS: The mean RVU PP was 4027.23 ± 1341.70. Mean PS score was 1.49 ±0.17, with 1 being Excellent and 5 being Poor. Using the average overall PS for each physician, the correlation coefficient (R) between generalist physician PS and PP was 0.06 (CI−0.29,0.17). In OB/Gyn the R was 0.19 (CI−0.69,1.00) and in Dermatology the R was 0.52 (CI−0.13,1.00).
CONCLUSION: The productivity of generalist and selected specialist physicians in a multi-specialty community practice setting was unrelated to overall PS within a wide range of clinical productivity. Other factors in the physician-patient encounter are more important in defining PS.

**DOES THE OSTEOPATHIC PHYSICIAN DIFFER IN PATIENT INTERACTION FROM THE MD? AN EMPIRICALLY DERIVED APPROACH.** T.S. Carey[1], T. Motyka[2], J. Garrett[3], R.B. Keller[4]; [1]UNC-CH, Cecil G. Sheps Center for Health Services Research, Chapel Hill, NC; [2]Private Practice, Chapel Hill, NC; [3]UNC-CH, Dept. of Medicine, Chapel Hill, NC; [4]Maine Medical Assessment Foundation, Manchester, ME *(Tracking ID #51558)*

BACKGROUND: Doctors of Osteopathy (DO's) form an increasing portion of the primary care workforce. Many DO's perform osteopathic manipulative therapy (OMT) as part of their

practice, but schools of osteopathy in addition teach "principles of osteopathic practice" that are said to differ from those taught in allopathic medical education. Research question: Do the interactions of osteopathic primary care physicians with patients reflect the principles of osteopathic practice, when compared with the interactions of MD's with similar patients? Population: 11 DO and 7 MD primary care physicians in Maine.
METHODS: The principles of osteopathic practice were derived from the literature and adapted to elements that could be measured from an audio recording. The 26 item index of osteopathic practice was refined with 2 focus groups of practicing DO's in other states. Audiotapes were recorded from 54 visits for screening physicals, headache, low back pain, or hypertension. Physicians were not aware of the study hypotheses. The audiotapes were dual abstracted using a standard coding form.
RESULTS: Most of the patients were women. Of the 26 items reflective of osteopathic principles of practice were summed, the DO's has consistently higher scores (11 vs. 6.9, p = 0.01). Visit length was similar (22 vs. 20 minutes). 21 of the 26 items were used more commonly by osteopathic compared with the medical doctors. DO's were more likely to use the patient's first name, more likely to explain the etiology of the problem to the patient, and more likely to discuss social, family and emotional impact of the illness.
CONCLUSION: In this small study, Doctors of Osteopathy were easily distinguishable from MD's by their non-manual therapy verbal interactions with patients. Future studies should replicate this finding, as well as determine whether it correlates with patient outcomes and satisfaction.

**ACCESS TO MENTAL HEALTH CARE IN A RURAL STATE.** C. Carney[1], A. Pitkin[2], R.F. Woolson[2], B.N. Doebbeling[2]; [1]University of Iowa, College of Medicine, Departments of Psychiatry and Internal Medicine, Iowa City, IA; [2]University of Iowa, Iowa City, IA *(Tracking ID #52397)*

BACKGROUND: In states with large rural populations, diagnosis and treatment of mental disorders may fall principally to primary care providers. This study was conducted to determine if rural dwellers have limited access to specialty mental health services compared to their urban counterparts.
METHODS: We analyzed Wellmark Blue Cross/Blue Shield of Iowa inpatient and outpatient claims data from 1989 – 1993. Eighty-nine of Iowa's 99 counties are rural based on statistical metropolitan service areas definitions. Primary care providers were defined as general internists, family physicians, and general practitioners. Mental health specialists were defined as psychiatrists, psychologists, and clinical social workers. Mental health services were ascertained based on ICD-9 diagnostic codes and current procedural terminology codes.
RESULTS: 813,662 persons age >17 years were assessed. Thirteen percent of the population (n = 106,073) had at least one mental health claim. More than half (54%) of the initial mental health claims were for rural dwellers. Rural dwellers were less likely to have received services from mental health providers than urban dwellers (43 vs. 53%, P < 0.001). For those persons who had received a mental health consult, urban dwellers were more likely than rural dwellers to have seen a mental health provider more than once (15 vs. 14%, P = 0.0009). No differences were noted between urban and rural dwellers in access to psychiatric hospitalization or electroconvulsive therapy. Age and gender did not influence the results. However, compared to urban subjects, rural dwellers less frequently used psychotherapeutic and counseling services (25% vs. 35%, P < 0.0001).
CONCLUSION: Although rural citizens account for more than half of all patients with psychiatric diagnoses, their access to mental health care providers and psychotherapeutic services is limited. These data suggest that rural primary care providers may need enhanced training in the treatment of mental disorders.

**VARIATION OF REIMBURSEMENT DENIALS AND REVERSALS AMONG MANAGED CARE ORGANIZATIONS.** J.D. Greenberg[1], R. Sharma[2], H. Noveck[1], M. Bueno[3], J.L. Carson[1]; [1]University of Medicine & Dentistry of New Jersey, New Brunswick, NJ; [2]University of Medicine and Dentistry of New Jersey, New Brunswick, NJ; [3]Robert Wood Johnson University Hospital, New Brunswick, NJ *(Tracking ID #51999)*

BACKGROUND: Reducing the rate and number of days of hospitalization is an important strategy for maintaining profitability for managed care companies. Most companies state that they review hospital admissions using industry guidelines to determine appropriateness of admission and length of stay. The goal of this study was to contrast the frequency in which managed care organizations deny and downgrade reimbursement for hospital admissions.
METHODS: We performed a retrospective cohort study consisting of consecutive patients admitted to Robert Wood Johnson University Hospital in 1999. We included patients in whom reimbursement for inpatient care was determined on a perdiem basis. We analyzed information from databases on patient billing and denial of reimbursement created by the hospital. We defined a denied day as an inpatient hospital day for which reimbursement was fully denied by the insurer. We defined a downgraded day as an inpatient hospital day for which reimbursement was downgraded by the insurer from the level at which the care was provided. We defined a reversal day as previously denied or downgraded days which were ultimately reimbursed. We identified the primary insurer for each patient.
RESULTS: Of the 11,762 admissions, 14.1% had at least one day either denied or downgraded. Of the 59,354 hospital days, 6,122 days (10.3%) were either denied or downgraded. The number of denied admissions (p < 0.01) and days (p < 0.01) varied among insurers with at least 1000 hospital days (Table). Reversal of admissions (p < 0.01) and days (p < 0.01) also varied among the companies.
CONCLUSION: While we cannot exclude differences in patient characteristics, the wide variation in denials and downgrades suggests that companies use different criteria to evaluate the appropriateness and duration of hospital admission. Evidence-based objective criteria for denials and downgrades are needed to ensure patients are not prematurely discharged and that the fiscal health of the hospital and insurance company are protected.

**Variation in Percent of Denials of Admissions (Adm) and Days (Day) by Insurers (A – L)**

| | A | B | C | D | E | F | G | H | I | J | K | L |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Adm | 24 | 25 | 15 | 12 | 28 | 4 | 2 | 4 | 20 | 7 | 15 | 4 |
| Day | 17 | 21 | 10 | 12 | 13 | 4 | 1 | 4 | 1 | 9 | 15 | 2 |

**PREDICTORS OF GUIDELINE ADHERENCE IN THE CARE OF DEPRESSED PATIENTS.** A. Charbonneau[1], A. Rosen[1], B. Kader[1], A. Ash[2], R. Owen[3], D. Berlowitz[1]; [1]Center for Health Quality, Outcomes, Economic Research, Bedford, MA; [2]Boston University Section of General Internal Medicine, Boston, MA; [3]Center for Mental Health Outcomes Research, N. Little Rock, AR *(Tracking ID #46199)*

BACKGROUND: Although clinical guidelines were first published in 1993 to promote effective treatment of depression, numerous studies have shown that the pharmacotherapy for depressed patients is still inadequate. Few studies have used clinical guidelines as the benchmark for depression treatment adequacy. The purpose of this study is to classify adherence to the guidelines, and to explore patient and provider factors associated with non-adherence.
METHODS: We identified all enrollees of the Veterans Affairs (VA) health system with depression in the Northeastern US during 1999 using VA inpatient and outpatient administrative files. Patients had at least one diagnosis of depression (ICD-9-CM codes 296.2x, 296.3x, 311.xx); those with coexisting schizophrenia and/or bipolar disease were excluded. We identified patients who had antidepressant prescriptions from 6/1/99 through 8/31/99 in the automated VA pharmacy file. Guideline adherence was measured by two outcomes: antidepressant dosage and duration adequacy. Dosage adequacy was measured by comparing average strength (mg)/day over the three months with minimum recommended daily dosages. Duration adequacy was a dichotomous variable designed to capture whether or not patients missed more than 3 weeks of therapy during the three months. Multivariable forward stepwise regression models were used to identify predictors for each measure of guideline adherence.
RESULTS: 12,677 patients had antidepressants prescribed from 6/1/99 through 8/31/99. Of these, 11,409 (90%) had adequate dosage; 6,085 (48%) had adequate duration. Only 5,071 (40%) had both adequate dosage and duration. Patients younger than 65 were less likely to have adequate dosage (OR .65, 95% CI .56, .75) and duration (OR .82, 95% CI .75, .89) compared to patients older than 65. Black patients were less likely to have adequate dosage (OR .7, 95% CI .54, .91) and duration (OR .58, 95% CI .5, .68) compared with white patients. Patients seen exclusively in medical clinic were less likely to have adequate dosage (OR .51, 95% CI .43, .61) compared to patients seen concomitantly in psychiatry clinic.
CONCLUSION: Under-treatment of depression is still substantial, despite the well-known risks of worse outcomes. Younger and black patients, and those seen exclusively in primary care settings, may be at higher risk for inadequate pharmacotherapy. Since non-VA patients do not have the generous mental health and pharmacy benefits that were available to this population, their risk for inadequate treatment may be even higher. Further work is needed to determine more effective ways to align current practice with best-practice guidelines, and to explore other patient, provider, and system characteristics affecting adequacy of treatment.

**USE OF A SELF-REPORT GENERATED CHARLSON COMORBIDITY INDEX FOR PREDICTING MORTALITY.** S. Chaudhry[1], L. Jin[1], D.O. Meltzer[1]; [1]University of Chicago, Chicago, IL *(Tracking ID #51959)*

BACKGROUND: The Charlson Comorbidity Index is a popular tool for risk adjustment. Limitations in the data sources used to construct the index (medical record abstracts and administrative data) has led to interest in using patient self report as an alternative. However, there is limited data on whether a self-report generated Charlson index predicts resource use and no data on whether it predicts mortality. We determine how well a patient self-report generated Charlson Index predicts one year mortality and resource use, if it functions better than administrative data, and if using study-specific weights instead of Charlson's original weights enhances model fit.
METHODS: All patients admitted to a university general medicine service(n = 3368) over a 2 year period were interviewed about their comorbidities using a previously validated patient questionnaire. The Charlson index was calculated in 4 different ways: using ICD-9 data with original weights and study-specific weights and using patient self-report of comorbidities with original weights and study specific weights. Correlations between each index were calculated. Multivariate models adjusting for age, gender, race, and DRG-weight were constructed to predict one year mortality (main outcome), total charges, and length of stay (secondary outcomes). The goodness of fit for each model was compared.
RESULTS: The 4 measures of the Charlson index were significantly correlated with each other and with one-year mortality. In multivariate analysis, all four measures predicted mortality (p < 0.001) with models obtaining approximately equivalent areas under the receiver operating curve (ROC) of 0.74 – 0.78. Administrative data predicted total charges regardless of weighting scheme and self-report predicted charges if study specific weights were used. No measure predicted length of stay.
CONCLUSION: The Charlson index generated by patient self-report does predict one year mortality as does administrative data. Using study specific weights improved model fit for both indices. Use of one data source versus the other may depend on the characteristics of the institution, patients, and costs involved in generating the Charlson index.

**HEALTH LITERACY AMONG PREOPERATIVE PATIENTS IN A VA HEALTH CARE SYSTEM.** L.D. Chew[1], T.D. Koepsell[1], K.A. Bradley[1]; [1]University of Washington, Seattle, WA *(Tracking ID #51540)*

BACKGROUND: Studies show that health information is often written at levels exceeding patients' reading skills. In the preoperative setting, instructions for ambulatory surgery rely

heavily on written materials. However, little is known about the prevalence of low health literacy among preoperative patients.
OBJECTIVE: To estimate the prevalence of inadequate and marginal health literacy among preoperative patients at the VA Puget Sound Health Care System (VAPSHCS) and describe the demographic characteristics associated with limited health literacy.
METHODS: We conducted a cross-sectional study, interviewing consecutive English-speaking patients who presented to the VAPSHCS for their preoperative visit for ambulatory surgery. We administered a validated test of health literacy (the Short Test of Functional Health Literacy in Adults – STOFHLA), assessed cognitive function, and asked questions regarding demographic characteristics. Patients were categorized as having inadequate, marginal, or adequate health literacy skills based on their STOFHLA score.
RESULTS: Of the 200 participants interviewed, the mean age was 57.3 years, 94% were men, 6.5% had less than an 8th grade education. Overall, 14% of respondents had inadequate or marginal health literacy skills based on the STOFHLA. The prevalence of inadequate or marginal health literacy among the elderly (>65 years) was 28% compared to 8% of those under the age of 65 years ($p < 0.0001$). In multivariate analysis, cognitive impairment and age were significantly associated with inadequate or marginal health literacy. Health literacy decreased with age even after controlling for cognitive impairment and educational level. The adjusted odds ratio (controlling for gender, race, employment status, cognitive impairment, educational level, and income) for having inadequate or marginal health literacy for participants over the age of 65 was 5.95 (95%CI: 1.69 – 20.92) compared to those participants between the ages of 45 and 64.
CONCLUSION: A substantial proportion of VA preoperative patients in this study and over a quarter of those over 65 years old did not have adequate health literacy. Low health literacy may be an important barrier for these VA preoperative patients to comprehending information regarding their illness and surgical procedures and to receiving high quality care. Patients who receive care at VA health care facilities, particularly the elderly, may not have the necessary literacy skills to participate fully in their care.

**DO DIAGNOSIS-RELATED GROUP PAYMENTS ACCOUNT FOR THE COST OF CARING FOR HOSPITALIZED ELDERS WITH POOR FUNCTIONAL STATUS?** K. Chuang[1], K.E. Covinsky[1], L. Sands[1], S. Landefeld[1]; [1]University of California, San Francisco, San Francisco, CA *(Tracking ID #50647)*

BACKGROUND: Diagnosis-related groups (DRG) are used by Medicare to determine payments to hospitals. Although hospital costs may be associated with patient functional status, DRGs do not take functional status into account. Our goal was to determine whether DRG payments account for the cost of caring for hospitalized elders with poor functional status.
METHODS: We conducted a prospective cohort study in 1608 medical patients ≥70 years old discharged from a university teaching hospital. We determined independence in 5 activities of daily living (ADL) at admission through patient and family interviews. The hospital costs for each patient were determined from the hospital's perspective by an accounting system that assigns costs based on individual use of specific services. We used the patient's DRG cost-weight, which was derived from each patient's discharge diagnosis, to adjust for the payment the hospital received for caring for the patient. To account for the skew in cost data, we took the log transformation of hospital costs, and then took the antilog of results to report geometric mean costs. We then compared hospital costs by level of ADL function.
RESULTS: The mean age of the 1608 patients was 81 years, 67% were women, 40% were minorities, and 64% were dependent in ≥1 ADL (ADL dependent) on admission. The unadjusted mean cost was higher in ADL dependent patients than in those who were independent in all five ADL (ADL independent) ($5287 vs. $4046, $p < 0.01$). After using linear regression to adjust for hospital payment, ADL dependent patients still cost more than ADL independent patients ($5232 vs. $4122, $p < 0.01$). Results were similar after further adjusting for age, gender, race, Charlson co-morbidity score, and severity of illness in multivariable analysis ($5169 vs. $4229, $p < 0.01$).
CONCLUSION: Hospital costs are higher in patients with worse ADL function, even after adjusting for DRGs. Thus, DRG payments do not account for the cost of caring for hospitalized elders with poor functional status.

**DO PROVIDERS RECOGNIZE PROBLEM DRINKING IN THEIR HIV+ PATIENTS?** J. Conigliaro[1], K. Mcginnis[1], A. Gordon[1], L. Rabeneck[2], J. Briggs[3], A.C. Justice[1]; [1]University of Pittsburgh; VA Pittsburgh Healthcare System, Center for Health Equity Research and Promotion, Pittsburgh, PA; [2]Baylor College of Medicine, Houston, TX; [3]VAMC-Cleveland, Cleveland, OH *(Tracking ID #52123)*

BACKGROUND: Alcohol use and abuse are likely important determinates of comorbidity, adherence and disease progression in HIV infection. We asked whether HIV primary care providers accurately diagnose problem drinking and what characterized patients in whom providers were likely to miss problem drinking.
METHODS: We surveyed 881 HIV+ veterans and their providers at 3 VA sites. Problem drinking was assessed using the Alcohol Use Disorders Identification Test (AUDIT) and by asking patients' primary providers whether the patient "drinks too much alcohol". We defined problem drinking as either an AUDIT > or = 8 or binge drinking (> or = 6 drinks when drinking). We used logistic regression to characterize those in whom providers were likely to miss problem drinking using the following variables: age (> or = 50 years), race (non-white), VL > 500 copies/ml, CD4 > 200/mm3, sum of HIV-related comorbidities, sum of general comorbidities, patient reported alcohol use, hepatitis C, abnormal LFTs (ALT or AST >normal), depression (CESD > or = 10), IVDU exposure status, and present drug use.
RESULTS: Mean age was 49 years and 99% were male. Overall, 55% were African American and 12% Latino or other. Forty percent of patients reported any current drinking. Of patients surveyed, 37% reported problem drinking. Providers reported that 12.5% of patients drank too much. While provider diagnosis was specific (94%), it was insensitive (24%). VL < or = 500 copies/ml (OR = 2.13, p = .016), hepatitis C negativity (OR = 1.92, p = .035), and normal liver function tests (OR = 1.85, p = .04) were significant in univariate models and associated with missing problem drinking. Variables that remained important in multivariate logistic regression models for missing problem drinking were: VL < or = 500 copies/ml (OR = 1.77, p = .09), and normal LFTs (OR = 1.87, p = .04).
CONCLUSION: Alcohol use and problem drinking are prevalent among a cohort of HIV infected veterans. Providers under diagnose problem drinking in this cohort. Finally, providers may be assuming patients do not "drink too much" if the patient has a low viral load, has normal liver function tests.

**ROLAND SCORE VERSUS A PATIENT SPECIFIC MEASURE OF BACK PAIN.** M.T. Connelly[1], A. Legedza[1], D. Post[1], A. Hrbek[1], R. Davis[1], R. Phillips[1], D.M. Eisenberg[1]; [1]Harvard Medical School, Boston, MA *(Tracking ID #51791)*

BACKGROUND: Although the Roland scale is a valid and reliable instrument for assessing back pain-specific functional status, its length (23 items) limits its utility in a clinical setting. We sought to evaluate whether patients' shorter self-reports (3 items) of physical limitations due to acute low back pain (albp) would be as successful as the Roland scale in predicting baseline pain and interference with function.
METHODS: Modified Roland scores (0 – 23 scale, 23 = worst impairment); impairment by albp to each of three self-reported activities specific to the patient (e.g., "bending", "lifting", "walking"; 0 – 10 scale each, 10 = most impaired); overall pain score (pain) (0 – 10 scale, 10 = most pain); and interference with daily activity (interference (0 – 10 scale, 10 = most interference) were measured at baseline for 298 participants in a randomized controlled trial of conventional care versus a choice of acupuncture, chiropractic, massage, or convential care for albp. All respondents were patients in a large, multi-specialty group practice and were referred by their primary care providers to the study. The three patient-specific impairment ratings were summarized as a mean score (mean). Spearman correlations and linear regression models were used to assess the relationship of each of the independent variables (Roland and mean) to each of the dependent variables (pain and interference).
RESULTS: Of the 558 individuals referred to the study, 298 were eligible and provided informed consent to participate. Participants' mean age was 43; 51% were female; 63% were white and 21% were black. Mean baseline scores were 16.3 (sd 4.7) for Roland, 7.3 (sd 1.7) for mean, 7.2 (sd 2.1) for pain, and 7.2 (sd 2.5) for interference. The mean was strongly correlated with the Roland (Spearman correlation = .46, $p < .0001$). In linear regression models adjusted for demographic characteristics, the mean was more strongly associated with pain than the Roland was ($R2 = .40$ for mean model, $R2 = .31$ for Roland model). Roland explained interference better in a demographically adjusted model ($R2 = .40$), but mean was similarly highly explanatory ($R2 = .36$).
CONCLUSION: Asking individuals to describe the degree to which acute low back pain affects three activities that are specifically important to them and summarizing those reports as a mean may be as effective a method for gauging pain severity and the global impact of albp on functional status as the Roland scale. Further evaluation of this simpler 3-part instrument for reliability and validity in a clinical setting will be necessary to determine its true utility relative to the modified 23-item Roland.

**MINNESOTA MULTIPHASIC PERSONALITY INVENTORY (MMPI) CORRELATES OF PATIENT SATISFACTION IN MEDICAL OUTPATIENTS.** B.A. Costello[1], T.G. Mcleod[1], G.R. Locke[1], R.A. Dierkhising[1], K.P. Offord[1], R.C. Colligan[1]; [1]Mayo Clinic, Rochester, MN *(Tracking ID #50662)*

BACKGROUND: Patient satisfaction has been studied in a variety of clinical settings. Satisfaction ratings have been linked to compliance and willingness to continue seeing a particular physician. Though much has been written regarding the influence of healthcare system and physician characteristic variables on patient satisfaction, suprisingly little has been published addressing personality characteristics of the patient and how these may impact upon their satisfaction with medical care. Our study examines the relationship between stable patient personality characteristics and self-reported levels of satisfaction with an outpatient medical encounter.
METHODS: Satisfaction surveys completed by 11,636 medical outpatients at an academic, tertiary care medical center were crossmatched with approximately 335,000 archived Minnesota Multiphasic Personality Inventory (MMPI) profiles. These merged data sets yielded a cohort of 1259 patients who had completed both a satisfaction survey and MMPI. Using a five-point Likert Scale, levels of satisfaction for each of eight areas of outpatient care were determined. Associations with individual MMPI optimism/pessimism (PSM) and hostility (Ho) scores were examined.
RESULTS: Satisfaction questionnaires were analyzed based on ratings of excellent or non-excellent. Patients with high pessimism scores on MMPI (PSM T-score > 70) rated overall care as excellent only 55% of the time, whereas those with low pessimism scores (PSM T-score < 40), suggesting a more optimistic personality style, rated care as excellent 72% of the time ($p = 0.003$). Similarly, patients with high hostility scores (Ho T-score > 70) rated overall care as excellent only 48% of the time, whereas patients with low hostility scores (Ho T-score < 40) rated care as excellent 66% of the time ($p = 0.002$).
CONCLUSION: Many aspects of patient satisfaction, including healthcare system and physician characteristic determinants, have been widely studied. Our study demonstrates an effect of patient personality characteristics (optimism/pessimism and hostility, as assessed by MMPI) on ratings of satisfaction with outpatient care. Such findings merit further investigation, and, ultimately, may guide us in design and interpretation of patient satisfaction surveys in the future.

**EXPECTATIONS AND OUTCOMES OF FEEDING TUBE PLACEMENT FROM THE PERSPECTIVE OF PATIENTS' SURROGATES AND PHYSICIANS.** C.E. Cox[1], C.L. Lewis[1], T.S. Carey[1], J.M. Garrett[1], A.M. Jackman[1], N. Phifer[2], L.C. Hanson[1]; [1]University of North Carolina at Chapel Hill, Chapel Hill, NC; [2]Moses Cone Memorial Hospital, Greensboro, NC *(Tracking ID #50915)*

BACKGROUND: Health outcomes including quality of life (QOL) and functional status of persons who receive percutaneous feeding tubes (FTs) are not well described. We undertook a

prospective cohort study of new FT recipients to examine the expectations and experiences of patients, their surrogates, and the physicians involved in FT placement.
METHODS: We identified patients >21 years of age who received an initial FT at a university teaching and a community hospital. Interviews with patients and/or surrogates were conducted in person or by telephone at the time of FT placement and repeated at 3 months. Surrogates were interviewed even if the patient had died during the 3 months after FT placement. Patients' primary physicians were also surveyed at the time of feeding tube placement. Because most patients were incapable of completing interviews, we report surrogate responses here. Surrogates and physicians reported patients' QOL on a 10 point scale, with 0 representing death and 10 perfect health.
RESULTS: 192 patient surrogates were interviewed at baseline and 114 were interviewed again 3 months after FT placement. 110 physicians completed surveys at the time of FT placement. Baseline patient characteristics included: mean age 67, 67% white, 51% male, 61% high school graduates, and 49% had >3 chronic comorbid conditions. Reasons for FT placement were ENT cancer (31%), neurodegenerative disease (13%), stroke (31%), and other (25%). 10% of surrogates were parents, 38% spouses, and 37% children of the patients. At baseline, most surrogates (91%) and physicians (84%) expected FT placement to result in improved QOL. At the baseline interview, surrogates and physicians estimated patients' QOL before FT placement as means of 4.6 (sd 2.3) and 4.0 (sd 2.3) and just after FT placement as 5.4 (sd 2.3) and 5.2 (sd 2.4). Surrogates expected further increases in patients' QOL, predicting a mean score of 7.8 (sd 2.1) at 6 months. Surrogates also expected patients' health (95%) and independence (57%) to improve in the 3 months after FT placement. However, Katz Index of activities of daily living scores (0 = totally independent and 6 = completely dependent) increased from a mean score of 4.7 (sd 2) to 5 (1.2). 93% of patients had Katz scores ≥4, indicating the need for constant assistance. Although at baseline 71% of surrogates and 91% of physicians expected patients to live >3 months, 25% died during this time.
CONCLUSION: Surrogate and physician perceptions of patients' QOL after FT placement were similar. Surrogates' expectations for improvement in patients' QOL were high at baseline and continued to increase with time for this extremely low-functioning group with high mortality. Physicians greatly overestimated patients' 3 month survival.

**THE IMPACT OF WEEKEND ADMISSION ON HOSPITAL LENGTH OF STAY.** P.M. Cram[1], T.P. Hofer[1], S.R. Kaufman[1], S.K. Saint[1], A.M. Fendrick[1]; [1]University of Michigan, Ann Arbor, MI *(Tracking ID #48748)*

BACKGROUND: Mean length of stay (LOS) for hospitalized patients has declined consistently over the past two decades. However, duration of hospitalization may exhibit predictable variation depending upon the day of the week of admission. A recent study reported a significantly higher in-hospital mortality rate for patients with certain diagnoses admitted on weekends (Friday – Saturday) when compared to weekdays. Our objective was to determine whether weekend admissions for specific diagnoses were associated with a longer LOS when compared with weekday admissions for the same reason.
METHODS: All non-elective admissions to California hospitals (n = 2,358,672). during 1998 were included. Log-transformed LOS for patients admitted on Friday or Saturday was compared with weekday LOS. Additional analyses adjusting for age, severity of illness, and co-morbidities using the APR-DRG severity of illness score were performed on three pre-specified categories. 1) CASES — diagnoses presumably affected by weekend staffing patterns (unstable angina — 11,166 admissions; syncope — 14,157; and failure to thrive — 493). 2) CONTROLS — diagnoses presumably not affected by weekend staffing (GI bleeding — 8,016 admissions; urinary tract infection — 25,550; and pneumonia — 81,176). 3) The 100 most common admission diagnoses.
RESULTS: When all admissions were analyzed, weekends were associated with a statistically significant increase in LOS when compared to weekdays (1 additional day per 29 weekend admissions, $p < .001$). Among the TEST diagnoses, a significant increase in weekend LOS was found for patients admitted with unstable angina (1 additional day per 6 weekend admissions $p < .001$) and syncope (1 additional day per 19 weekend admissions, $p < .001$), but not for failure to thrive ($p = .422$). Statistically significant increases in weekend LOS were found for each of the CONTROL diagnoses, pneumonia (1 additional day per 28 weekend admissions, $p < .001$), urinary tract infection (1 additional day per 18 weekend admissions, $p < .001$) and GI bleeding (1 additional day per 22 weekend admissions, $p = .005$). Weekend LOS was significantly increased for 41 of the 100 most frequent admission diagnoses (including dehydration, acute myocardial infarction, congestive heart failure, and acute cholecystitis) and significantly reduced for 6 (5 obstetric diagnoses and chemotherapy administration).
CONCLUSION: Although a differential weekend effect between the pre-specified TEST diagnoses and CONTROLS was not identified, there was a substantial overall increase in LOS for non-elective weekend admissions when compared with weekdays. The economic consequences of these prolonged hospitalizations are substantial when extrapolated to the estimated 10 million annual weekend admissions in the Unites States. Whether the investment required to decrease weekend LOS to that of weekdays is cost-effective warrants future investigation.

**THE IMPACT OF A CELEBRITY SPOKESPERSON ON PREVENTIVE HEALTH BEHAVIOR: THE KATIE COURIC EFFECT.** P.M. Cram[1], S. Vijan[1], J.M. Inadomi[1], M.E. Cowen[2], D. Carpenter[1], A.M. Fendrick[1]; [1]University of Michigan, Ann Arbor, MI; [2]St. Joseph's Mercy Hospital, Ypsilanti, MI *(Tracking ID #50860)*

BACKGROUND: Celebrity endorsement is widely embraced by business to influence the behavior of potential customers. Limited research in the medical literature suggests that publicity surrounding celebrity illness may have a similarly powerful effect on public health behavior. In March, 2000 Katie Couric and the Today Show televised a 5-day series entitled "Confronting Colon Cancer" which culminated in Ms. Couric's live, on-air colonoscopy. The objective of this study was to assess the impact of the Today Show campaign on colonoscopy rates.
METHODS: Two different data sets were used: The Clinical Outcomes Research Initiative (CORI) database — A voluntary consortium of 400 endoscopists who performed 95,000 colonoscopies from July 1998 to December, 2000; Data on colonoscopy rates from 44,000 adult members of a managed care organization (MCO). Colonoscopy utilization before and after Ms. Couric's March, 2000 television series was compared using a linear regression model with interaction terms. Mammography and PSA screening utilization from the MCO were also analyzed as controls.
RESULTS: Data from the CORI database demonstrated a significant increase in the number of colonoscopies performed per CORI physician following Ms. Couric's campaign (4.76 per week before; 6.13 after; $p < .001$). Additionally, the mean age of patients receiving colonoscopies decreased significantly and the percentage of women increased significantly. After adjusting for underlying temporal trends, a significantly higher post-campaign colonoscopy rate was detected and sustained for 40 weeks. Data from the MCO demonstrated a similar significant increase in colonoscopies after Ms. Couric's campaign (.657 per 1,000 members per month before vs .931 after, $p < .0001$). Analysis of mammography and PSA screening failed to demonstrate any significant increase in screening rates during the period of study.
CONCLUSION: Katie Couric's televised colon cancer awareness campaign coincides with an increase in the use of colonoscopies in two different data sets. There were no other identifiable causes of this increase and a similar increase was not found in mammography or PSA screening. These findings suggest that a celebrity spokesperson can have a substantial impact on public health behavior. Further investigation into the use of celebrity spokespersons to influence public health behavior is warranted.

**CONTRASTS IN DIABETES CARE: THE CASE OF HEMOGLOBIN A-1-C COMPARED TO REFERRAL FOR RETINAL EXAMINATIONS.** S. Cykert[1], L.S. Kinsinger[2], R.P. Harris[2]; [1]University of North Carolina at Chapel Hill and the Internal Medicine Program of Moses Cone Hospital, Greensboro, NC; [2]University of North Carolina at Chapel Hill, Chapel Hill, NC *(Tracking ID #51920)*

BACKGROUND: During the last 6 years, many reports have emphasized the association of persistent elevation of hemoglobin A-1-C and major complications of diabetes. These publications have particularly highlighted the prevalence of diabetic retinopathy. Because of these data, the American Diabetes Association and other organizations have recommended at least twice a year monitoring of hemoglobin A-1-C and performance of yearly, dilated eye exams for diabetic patients. The purpose of this report was to assess the use of hemoglobin A-1-C and retinal exam referrals among private practitioners to ascertain adoption of the above practice recommendations over time.
METHODS: Making Prevention Work was a four-year study funded by the National Cancer Institute designed to assess baseline preventive cancer care in private practices then to create and apply interventions that maximize this care. One hundred and thirty-one primary care physicians in 27 practices located in central North Carolina were recruited to participate in the study. As part of the chart review process, the investigators chose to look at aspects of diabetes care as a means of comparing preventive processes to chronic disease management. Patients aged 50 to 80 years without a history of cancer were eligible for the study and every 10th practice chart was systematically reviewed. For the overall study, 2754 charts were reviewed at baseline (1995) and 2952 were reviewed at follow-up (2000). Three hundred-thirty one of the baseline patients were diabetic compared to 453 at follow-up chart review. Credit was given for performance of Hemoglobin A-1-C if one measurement was reported in the year prior to the date of chart review. Eye exams were counted if a consultation or progress note alluding to eye exam was observed in the chart during this preceding year.
RESULTS: At baseline, 67% of diabetic patients met the hemoglobin A-1-C criteria. Only 14% of these patients had documented eye exams. The utilization rate of Hemoglobin A-1-C increased dramatically at follow-up chart review to 94%. Eye examination rates also increased, but only to 19%.
CONCLUSION: Private practitioners in primary care have enthusiastically adopted the use of hemoglobin A-1-C as a disease management tool in diabetes. Referral for annual retinal exams has not caught on as spectacularly. Reasons for the successful adoption of hemoglobin A-1-C should be identified and applied toward adoption of other important practice recommendations in private practice settings.

**A SURVEY OF CRITICAL PATHWAY USE AND EVALUATION PRACTICES AMONG HOSPITALS WITHIN TWO QUALITY CONSORTIA.** J. Darer[1], P.J. Pronovost[1], E.B. Bass[1]; [1]Johns Hopkins University, Baltimore, MD *(Tracking ID #51990)*

BACKGROUND: The drive toward improving efficiency and quality has led to the rapid adoption of critical pathways as a utilization management tool in U.S. health care institutions. Hospitals have devoted substantial resources to critical pathways but it is unknown whether hospital routinely evaluate the clinical or economic effects of pathways. We sought to determine how use and evaluation of critical pathways differed among different types of hospitals.
METHODS: We performed a cross-sectional survey of hospital administrators of two consortia of hospitals that have made a committment to improving quality of care. Our main outcome measures were percent of hospitals tracking utilization and effects of pathways.
RESULTS: Seventy-one percent of the 58 targeted hospitals responded including 13 academic medical centers (AMCs), 13 community teaching hospitals (CTHs), and 15 community hospitals (CHs). The most common pathways included community-acquired pneumonia, total hip or knee replacements, and stroke or transient ischemic attack. The median number of adult critical pathways used by AMCs, CTHs, and CHs, respectively, were 25, 18, and 3. Among hospitals with pathways, frequency of actual use by patients was reportedly measured by 54% of AMCs, 67% of CTHs, and 33% of CHs. Of hospitals that measured pathway use, the mean percentage of patient admissions eligible for pathways was 38%; the mean percentage of patients placed on pathways was 31%. Outcomes measured by hospitals with pathways included: length of stay in 100% of AMCs, 83% of CTHs, and 67% of CHs; total hospital costs in 92% of AMCs, 67% of CTHs, and 56% of CHs; in-hospital mortality in 77% of AMCs, 58% of CTHs, and 44% of CHs; infectious complications in 69% of AMCs, 50% of CTHs, and 33% of CHs; procedure complications in 54% of AMCs, 58% of CTHs, and 33%

of CHs; adverse drug events in 23% of AMCs, 17% of CTHs, and 0% of CHs; readmissions rate in 69% of AMCs, 42% of CTHs, and 22% of CHs.
CONCLUSION: The use and evaluation of critical pathways differs substantially by type of hospital even in networks of hospitals committed to the quality of care.

**HOW DO INDIVIDUALS WITH SEVERE MENTAL ILLNESS RATE THE PARTICIPATORY DECISION MAKING STYLES OF THEIR PRIMARY CARE PHYSICIANS?** G.L. Daumit[1], L.A. Cooper[1], D.E. Ford[1], D.M. Steinwachs[1]; [1]Johns Hopkins University, Baltimore, MD *(Tracking ID #45917)*

BACKGROUND: Individuals with severe mental illness (SMI) have high levels of medical comorbidity and are at risk for poor communication with their health care providers. We examined the extent to which individuals with SMI rated their visits with their primary care physicians as participatory.
METHODS: We performed an in-home survey of a random sample of Maryland Medicaid recipients with SMI in 2000. SMI was defined using criteria combining diagnosis (schizophrenia, bipolar disorder, depression and other disorders) with disability status. Participants reported on 2 participatory decision making (PDM) questions for the doctor they see for physical health problems (PCP): 1. If there were a choice between treatments, how often would your doctor ask you to help make the decision? and 2. How did you make decisions about your treatment at the last visit? We performed bivariate and multivariate analyses to examine self-reported factors related to PDM, and we explored how patient satisfaction with the PCP was related to PDM.
RESULTS: We report on the 375 of 424 participants who stated they had a PCP. The group was 64% female, 51% African-American, 60% over age 45, 75% urban, 21% with education > high school, 17% in supportive housing, and 60% with a chronic medical condition. 35% of individuals said that their PCP usually or often asked them to help make decisions (CHOICE); 35% said that they either made the final decisions themselves or with the nurse or doctor (ACTIVE). 50% reported yes to either CHOICE or ACTIVE, while only 22% reported yes to both. In a logistic regression model adjusting for sociodemographic and clinical factors, the odds for CHOICE were higher for education > high school, (OR[95%CI],1.77[1.03 – 2.02]) and usual care in health center/outpatient department vs. private office (OR[95%CI],1.68[1.03 – 2.73]). The adjusted odds for ACTIVE were higher for usual care in health center/outpatient department (OR[95%CI],1.62[1.00 – 2.64]) and having a chronic medical condition (OR[95%CI], 1.94[1.18 – 3.19]). Positive responses for CHOICE and ACTIVE were each related to higher patient satisfaction measures with physicians from the Consumer Assessment of Health Plans: Listening carefully (CHOICE $p < 0.002$, ACTIVE $p < 0.08$); Show respect for what you said (CHOICE $p < 0.006$, ACTIVE $p < 0.005$); and Spend enough time (CHOICE $p < 0.002$, ACTIVE $p < 0.01$).
CONCLUSION: Individuals with SMI are substantially less likely to rate their visits with PCPs as participatory compared to general medical patients; among those with SMI, organized care settings appear to offer more interpersonal care. Similar to general medical patients, individuals with SMI are more satisfied with their PCPs when they are encouraged to and do participate in medical decision making.

**PERCEPTIONS OF COORDINATION OF CARE BETWEEN MEDICAL AND MENTAL HEALTH PROVIDERS AMONG INDIVIDUALS WITH SEVERE MENTAL ILLNESS.** G.L. Daumit[1], D.E. Ford[1], M. Fahey[1], D.M. Steinwachs[1]; [1]Johns Hopkins University, Baltimore, MD *(Tracking ID #51730)*

BACKGROUND: Individuals with severe mental illness (SMI) often have comorbid medical condtions, take several medications, and see multiple health providers. The Institute of Medicine report 'Crossing the Quality Chasm' emphasizes cooperation and coordination among clinicians to improve patient care. To begin to coordinate care, it is first crucial for a provider to know that another provider is also caring for the patient. We explored the extent to which individuals with SMI thought their providers knew about each other, and examined factors related to this basic tenet of coordination.
METHODS: We performed an in-home cross-sectional survey of a random sample of Maryland Medicaid recipients with SMI in 2000. SMI was defined using criteria combining diagnosis (schizophrenia, bipolar disorder, depression and other) with disability status. Participants reported on the extent to which their general medical provider (MEDP) and mental health provider (MHP) knew about the care they were receiving from the other. We developed measures of coordination and performed univariate and bivariate analyses to examine whether patient characteristics may be related to measures of coordination.
RESULTS: The 312 of 424 survey participants reporting having both a MEDP and MHP formed our population for analysis. Four measures of coordination were: MHP and MEDP both know each other's names, 42%; MHP and MEDP know each other's names or office/clinic name, 69%; for patients taking medications, MHP know MEDP's name and medications, 48%; MEDP know MHP's name, 49%. For both MEDP and MHP, 50% of participants took the initiative to tell one provider about the other provider. MEDP and MHP were more likely to know each other's name or office name if: physical health status was poor or fair (75% vs. 63%, $p < 0.03$); a chronic medical condition was present (75% vs. 61%, $p < 0.01$); contact with family members was more frequent ($p < 0.01$); quality of life scores for family (5.2 vs. 4.6, $p < 0.01$) and social scales (5.2 vs. 4.8, $p < 0.01$) were higher; and participants were not in supervised living (72% vs. 58%, $p < 0.01$). Participants rating coordination very important were also more likely to have coordinated care across the 4 measures ($p < 0.001$). Coordination measures were not related to satisfaction with medical care, health utilization, or mental health symptoms.
CONCLUSION: While most providers caring for individuals with SMI knew the name or office of other providers, less than half knew both the name and medications. Higher coordination in patients with poorer health status or medical comorbidity is consistent with a greater need for medical care. Individual values and the family support system appear to be important for coordination of care for those with SMI. Understanding these measures of coordination is the first step in learning how to improve coordination between general medical care and mental health care for this vulnerable population.

**MEASURING STRUCTURAL COMPONENTS AND QUALITY IN PRIMARY CARE OFFICE PRACTICES.** G.L. Daumit[1], C.M. Graham[1], J.A. Flynn[1], M. Jenckes[1], D.E. Ford[1]; [1]Johns Hopkins University, Baltimore, MD *(Tracking ID #52410)*

BACKGROUND: Despite much emphasis on improving health care quality in the past decade, there has been little attention given to how the structure and organization of primary care offices is related to the quality of primary care. We aimed to develop a questionnaire that would identify important characteristics of office practices associated with the quality of care provided in these practices. We then examined whether office staffing patterns and financial stress were related to primary care quality.
METHODS: We performed focus groups with 25 community-based primary care physicians to generate structural components of primary care offices perceived to be associated with quality. We used a modified Delphi method to rank these characteristics and then developed an office self-assessment instrument. From information that a large managed care organization (MCO) uses to calculate their quality bonus, we constructed office quality scores using information on member satisfaction and adherence to chronic disease management and prevention guidelines. We then selected primary care offices from the highest and lowest tertiles of quality in the Maryland and Northern Virginia community having at least 150 member patients with the MCO to use the self-assessment instrument. Office managers completed the instrument with review by a senior physician in the practice. We performed bivariate and multivariate analyses to examine the relation between staffing patterns, financial stress and quality of care.
RESULTS: Thirty-three offices (14 low quality, 19 high quality) completed the instrument to date. The mean capitated panel size per physician was 1426; the mean monthly patient visits to physician ratio was 620; the mean turnover rate for office staff was 35% over two years. The patient to physician ratio, patient to staff ratio, physician to nurse ratio, and staff turnover were not related to office quality scores. Twelve percent of the high quality practices compared to 36% of the low quality practices stated their total revenue per physician had decreased >15% compared to 2 years ago. In a regression model adjusting for overall stress in the practice, patient to physician ratio, and percent of practice that receives Medicaid, decrease in revenue per physician was significantly associated with lower quality practices ($p < 0.05$).
CONCLUSION: We developed a questionnaire that detects considerable variation in how primary care offices are organized. Despite the expected limitations in power, we found that offices that report decreasing revenues per physician have lower quality scores. Staffing patterns did not predict office quality.

**WHEN SHOULD I SEE THIS PATIENT AGAIN?** K.B. Desalvo[1], E.B. St. Claire[1], W.W. Merrill[2]; [1]Tulane University, New Orleans, LA; [2]Veteran's Affairs Medical Center, New Orleans, LA *(Tracking ID #51374)*

BACKGROUND: Access to subspecialty ambulatory appointments is limited. Physicians principally determine their availability yet receive no formal training in this area and a significant amount of practice variation exists. The factors that influence physician assignment of the clinic visit interval have been described for general internists but they remain largely unexplored in subspecialty physicians. We examined influences on the assignment of ambulatory appointments by cardiologists.
METHODS: We asked 26 cardiologists (23 fellows and 3 faculty) from the same cardiology section to complete questions related to 8 vignettes of 4 levels of stabilitydescribing typical patients they might see in their ambulatory clinic with a diagnosis of coronary artery disease (CAD) or congestive heart failure (CHF). The inter-rater reliability was 0.75. The primary endpoint was the return visit interval (RVI) in weeks as assigned by the physician. Respondents were also asked to report on decisions to change therapy and order diagnostic tests for each case. Physician characteristics collected included sex, age, year of graduation from medical school, international medical graduate status, and level of training.
RESULTS: All 26 respondents were men and half were international medical graduates. The mean age was 37 years, and the largest group of respondents was first year cardiology fellows (N = 10). RVI assignment for vignettes ranged from 0 to 24 weeks with wide intra-vignette variation. Disease stability and RVI were inversely related ($p = 0.000$) with less stable patients assigned a shorter RVI. Visit characteristic predictors that shortened the RVI included changing treatment ($p < 0.000$) and ordering tests ($p < 0.000$). Age was the only significant physician level predictor ($p = 0.032$). Some physicians did not alter their RVI assignment according to changing disease stability demonstrating inappropriately low variation in RVI assignment. For example, they assigned a 4-week RVI for each patient, irrespective of vignette characteristics. Physicians less likely to vary their RVI assignment in response to changing disease stability included younger physicians ($p < 0.000$), international medical graduates ($p < 0.000$), and those who were more recent graduates of medical school ($p < 0.000$). In multivariate analysis, changing therapy, ordering diagnostic tests, stability level, and physician age and variance ranking accounted for 37% of the variance in RVI assignment.
CONCLUSION: Patient stability, visit characteristics and physician experience significantly influenced the assignment of RVI in the subspecialty clinic setting. Less experienced physicians demonstrated a lack of appropriate variation in RVI assignment across vignettes designed to have differing levels of stability and therefore varying return visit interval assignment. We have demonstrated inappropriate use of return appointments in a cardiology clinic. Physician use of this resource might be improved by education or other interventions.

**DEVELOPMENT AND PILOT TESTING OF A DISEASE MANAGEMENT PROGRAM FOR LOW LITERACY PATIENTS WITH HEART FAILURE.** D. Dewalt[1], M. Pignone[1], R. Malone[1], R. Rothman[1], C. Rawls[1], M. Corley[1], B. Angel[1], C. Sueta[1], B. Bryant[1]; [1]University of North Carolina at Chapel Hill, Chapel Hill, NC *(Tracking ID #51605)*

BACKGROUND: Randomized trials have shown that heart failure disease management programs that include patient weight assessment and diuretic dose adjustment can reduce hospitalizations and decrease morbidity. We sought to design and test the effect such a program for patients with low health literacy, a vulnerable group especially at-risk for adverse outcomes.

METHODS: We used focus groups and individual cognitive response interviews to develop an educational booklet for low literacy patients with heart failure. The educational booklet focused on helping patients assess their weight and symptoms daily, instructed them when to change their diuretic dose, and advised them when to seek additional care by phone or through a clinic visit. Our disease management intervention included the booklet, a 1-hour individualized educational session with a clinical pharmacist, and scheduled phone calls that were tapered over 6 weeks. We conducted a 3-month before-after study to test the effectiveness of our program. Eligible patients were 35 – 80 years of age, followed in general internal medicine clinic, carried a clinical diagnosis of heart failure, were taking a loop diuretic, and scored less than 62 (below 9th grade) on the REALM, a well-validated measure of health literacy. Outcome measures included: change in a heart failure knowledge scale and change in heart failure- related symptoms on the Minnesota Living with Heart Failure (MLwHF) scale.
RESULTS: 25 patients were enrolled and 23 completed 3-month follow-up (92%). Mean age was 59.6 years (range 35 – 74), 60% were men, 74% had household income less than $15,000 per year, and 60% were African-American. Median score on REALM was 31 (5th grade level) and 32% scored less than 18 (third grade level). Mean knowledge at baseline was 67.2% and did not change significantly after the intervention (mean change + 0.5%, p = 0.28). However, patients' heart failure symptoms, measured on the MLwHF scale (scale range 0 – 105, mean baseline score 57.1), had a mean improvement of 10.5 points after 3 months (95% CI 0.5, 20.4, p = 0.04), suggesting substantial symptomatic improvement. Patients with income less than $15,000 per year, less than 8th grade education, and literacy levels 3rd grade or below had larger improvements on the MLwHF scale in stratified analyses.
CONCLUSION: A heart failure disease management program designed specifically for patients with low health literacy can improve symptoms of heart failure, particularly in the most vulnerable patients. We are currently conducting a year-long randomized trial to better evaluate the effect of our program compared with standard care.

**IS OUTPATIENT UTILIZATION INCREASED AMONG GULF WAR VETERANS VERSUS NONDEPLOYED GULF WAR-ERA PERSONNEL POST-CONFLICT?** B.N. Doebbeling[1], W.R. Clarke[1], J.C. Torner[1], R.F. Woolson[1], P.M. Peloso[1]; [1]University of Iowa, Iowa City, IA *(Tracking ID #52401)*

BACKGROUND: Personnel deployed to the Gulf War remaining on active duty through 1993 have similar hospitalization rates to nondeployed Gulf War-Era (Era) forces. However, it is unclear whether those separating from active duty utilize health care more frequently than comparable controls. Few data are available regarding ambulatory care and emergency room (ER) utilization. To evaluate whether the illnesses reported were associated with increased medical care utilization, we assessed health services utilization data in a population-based survey of 3695 military personnel originally from Iowa.
METHODS: In this stratified random cross-sectional study, Gulf War (N = 1896) and Era (N = 1799) personnel were surveyed approximately 5 years post-conflict to assess health status and services utilization. We located and surveyed both those remaining on active duty and those discharged. 76% of eligible and 91% of located subjects participated. Utilization in the year prior to the interview was categorized by any hospitalization, any emergency room (ER) visit, and # of outpatient visits. Rates of utilization were analyzed by study strata and by active duty status at the time of the survey.
RESULTS: In logistic models adjusting for service type, age, sex, race, rank and branch, there were no significant differences by deployment with regards to hospitalization (Gulf War vs. Era OR = 1.12, CI95 = 0.80 – 1.57). However, Gulf War veterans had significantly more outpatient visits (adjusted mean = 1.32 vs. 1.12, P = 0.0025) and ER visits (OR = 1.24, CI95 = 1.03 – 1.51) than Era subjects. Slight increases in ER visits were seen among the Gulf War active duty (OR = 1.3, 1.03 – 1.62) versus Guard/Reserve. ER visits were more common among Gulf War personnel with depression (OR = 1.78, CI95 1.13 – 2.82) and outpatient utilization more common among those with injuries (mean 3.48 vs. 2.95, P = 0.037).
CONCLUSION: The illnesses reported by Gulf War veterans are positively related to increased outpatient visit utilization five years post-conflict. Excess illness burden is identified by examining outpatient and ER utilization and by including those discharged from service. Further research is needed to better understand the causes of utilization in this patient population and determine how it should be optimally managed.

**BENCHMARKING VETERANS AFFAIRS MEDICAL CENTERS IN THE DELIVERY OF PREVENTIVE HEALTH SERVICES USING TWO TYPES OF METHODS.** B.N. Doebbeling[1], T.E. Vaughn[1], E. Letuchy[1], P.M. Peloso[1], L.G. Branch[2]; [1]University of Iowa, Iowa City, IA; [2]Duke University School of Medicine, Durham, NC *(Tracking ID #52409)*

BACKGROUND: VA has encouraged adoption of evidence-based clinical preventive services throughout its health care system. To determine if clinical preventive services are provided consistently, we seek to benchmark all acute care Veterans Affairs Medical Centers (VAMCs) against each other nationally on the basis of multiple evidence-based performance measures to identify facilities performing consistently higher and lower than expected.
METHODS: The 1998 Veterans Health Survey (VHS) assessed the self-reported delivery of evidence-based clinical preventive services in a stratified national sample of 450 ambulatory care patients seen at each VAMC. Proportions appropriately receiving each service within the recommended time interval were calculated for 138 VAMCs. Percentile ranks for each outcome were assigned. Two approaches were used for benchmarking performance. First, a scaled score for each facility was calculated across the set of 12 measures. Second, facilities were ranked on the sum of the percentile ranks over a range of specific high cutoffs (eg, 70 – 90%) and above a range of lower cutoffs (eg, 40 – 55%). Ranking was validated by comparing with deciles of ranks on chart audit (External Peer Review Program, EPRP) data. Differences between consistently high adherence (CHA) and low adherence (CLA) facilities were compared on 14 VHS and 11 EPRP outcomes.
RESULTS: Data from 39 939 patients (67% response rate) were examined. In combination, cutoffs of greater than 50th percentile and greater than 75th percentile rank yielded 12 of 14 VHS and 6 of 11 EPRP measures different between CHA and CLA facilities. The scaled score approach resulted in 20 CHA and 14 CLA facilities. The sum of outcomes ranked above 50th percentile and over 75th percentile for CHA facilities (N = 17) was 15 or more. The sum of outcomes ranked above the same cutoffs for CLA facilities (N = 16) was 3 or fewer. EPRP and 1998 VHS data demonstrated that the survey measures and benchmarking approaches were reliable and valid. Both approaches resulted in multiple differences between CHA and CLA facilities; these were greater using the percentile rank approach.
CONCLUSION: VAMC facilities show wide variation in their levels of delivery of evidence-based clinical preventive services; they can be distinguished on the basis of their consistently high or low levels of adherence. Examining service delivery across multiple performance indicators allows identification of opportunities to improve guideline implementation and delivery of preventive services. This approach identifies model institutions where focused investigation of factors associated with consistent performance may be particularly fruitful.

**DEVELOPMENT AND VALIDATION OF AN ANTICOAGULATION QUALITY OF LIFE AND SATISFACTION INSTRUMENT.** R.J. Dolor[1], D.B. Matchar[1], G. Samsa[1]; [1]Duke University, Durham, NC *(Tracking ID #51316)*

BACKGROUND: There are few scales to measure quality of life (QOL) and satisfaction with anticoagulation (AC); none of these are generalizable across models of care. For research purposes, having a generalizable, validated scale would be important in support of randomized trials designed to directly compare different AC management models. Our goal was to develop and validate a survey measuring QOL and satisfaction with AC across different models of AC management.
METHODS: Dimensions of AC-related QOL and satisfaction were identified from literature, patient focus groups and expert opinion. A preliminary survey was administered through in-person interviews to 122 patients and assessed (a) at the item level, to determine frequency distributions, means and standard deviations, and (b) at the scale level, to determine which items grouped together; 7 items were deleted or revised. The revised survey resulted in 27 items, with 7 response categories coded from 1 to 7, measuring dimensions of limitations, hassles, and psychological impacts of anticoagulation. The revised survey, named the Duke Anticoagulation Satisfaction Scale (DASS), was administered along with the SF-36 (general QOL), the PSQ-18 (satisfaction with medical care) and the SDS-5 (socially desirable response set). We assessed the degree of variability among individual items, then examined the factor structure of the DASS using techniques of exploratory factor analysis with orthogonal rotations. Cronbach's alpha and item-total correlations were calculated for the overall DASS, treating the scale as a simple summation of the items, and also for possible subscales. Concurrent validity of the DASS summated and subscale scores were correlated with demographic variables, clinical characteristics, and scores on the SF-36, PSQ-18, and SDS-5.
RESULTS: The survey was administered to 262 patients (125 veteran, 137 community-based), mean age 69 (sd 12.34) and mean length on warfarin 4.4 years (sd 4.94). Indications for warfarin included atrial fibrillation (57%), stroke or transient ischemic attack (26%), deep vein thrombosis (17%) and mechanical heart valve (17%). Individual DASS items showed sufficient variation (sd ≥1). A large majority of items clearly grouped into one of three factors — limitations, hassles, and positive impacts of anticoagulation (Cronbachs alpha .86, .83, and .78 respectively). Overall, the items positively correlated (Cronbach's alpha .89). The summated DASS and its hassles and limitations subscales had a high degree of correlation with the other QOL and satisfaction instruments.
CONCLUSION: The DASS was developed and validated to measure satisfaction and quality of life with anticoagulation across different models of care. The overall DASS has a high degree of internal consistency, as do the subscales, and correlates with other measures of health status and satisfaction with medical care.

**NO IMPACT OF LITERACY ON GLYCEMIC CONTROL IN TYPE II DIABETES MELLITUS.** R.J. Dolor[1], S.H. Kim[1], H.B. Bosworth[1], D. Edelman[1]; [1]Duke University, Durham, NC *(Tracking ID #52271)*

BACKGROUND: Psychosocial factors such as personality, social support, literacy, spirituality, and trust have been found to influence compliance among patients suffering from chronic disease. However, data on the link between these factors on diabetic control is sparse and/or conflicting. This abstract reports the results of the relationship between literacy and glycemic control.
METHODS: Consecutive diabetic patients presenting to the Durham VA primary care clinic were asked to fill out questionnaires to assess demographic variables, literacy (REALM, Rapid Estimate of Adult Literacy in Medicine), social support (ISEL, Interpersonal Social Evaluation List), personality (NEO Five-Factor Inventory), trust (Trust in Physician Scale), spirituality (DUREL, Duke University Religion Index), and near vision (EDTRS, Early Treatment Diabetic Retinopathy Study). Data were collected from the electronic medical record for number of visits and hospitalizations in the past year, and laboratory values (hemoglobin A1c, lipid panel, urine protein, and creatinine). Both self-report and pharmacy data were used to assess compliance. The REALM literacy score equals the number of correct answers (range 0 – 66). Level of literacy was dichotomized into scores <60 (under 8th grade reading level) and ≥60 ( 8th grade reading level or higher). The relationship between hemoglobin A1c, literacy, and demographic variables was assessed in a multivariate analysis.
RESULTS: Two hundred diabetic patients (mean age 61.8, sd 11.5) were enrolled; 179 completed the demographic and REALM surveys. The mean hemoglobin A1c was 7.9 (sd 1.86). Literacy was less than 8th grade level in 80 (44%) of patients; overall mean literacy score for all patients was 57.1 (sd 12.5) which corresponds to less than 8th grade level. The multivariate analysis found that only age (p = 0.003) and socioeconomic status (p = 0.008) strongly influenced glycemic control (overall model R-square 0.17, p = 0.01).
CONCLUSION: Advanced age and poor socioeconomic status, but not literacy, were strongly associated with poor glycemic control. Further initiatives of this pilot study will explore whether other aspects (social support, personality, spirituality, trust in physician, near vision, and compliance) contribute to glycemic control. Interventions directed at those psychosocial factors that influence glycemic control might decrease microvascular complications among diabetics.

**THE SF-36 MENTAL COMPONENT SUMMARY SCORE PREDICTS HOSPITAL ADMISSION AND MORTALITY IN HEMODIALYSIS PATIENTS.** R. Drayer[1], R. Burr[1], B.M. Piraino[1], M. Shields[1], B.L. Rollman[1], N. Aslam[1]; [1]University of Pittsburgh, Pittsburgh, PA *(Tracking ID #50589)*

BACKGROUND: Patient-assessed functional status is an important predictor of mortality and hospitalization in primary care patients, but little is known about this relationship in hemodialysis (HD) patients. The Mental Composite Summary (MCS) score of the SF-36 is a summary measure of mental health and emotional functioning, and a low score can indicate a diagnosis of depression. Since depressive symptomatology is associated with increased mortality and resource utilization in HD patients, the MCS score may be a useful surrogate measure to predict these outcomes.
METHODS: Patients undergoing HD at an academically-affiliated outpatient hemodialysis center between 1/1/99 and 9/30/01 were enrolled in a registry. Data retrieved from the registry included demographics, medical comorbidities, hospitalizations, and deaths. SF-36 questionnaires were administered to patients as part of routine care and the MCS score from the first SF-36 administered upon entry into the registry was used in the analysis. Depression was defined as an MCS score ≤42. A Cox proportional hazards model was used to assess the impact of depression on outcome controlling for other variables.
RESULTS: A total of 126 patients were eligible to participate and 99 patients (79%) had an SF-36 score available for analysis. The mean patient age was 56.7 ± 15.7 years (range 20 – 90). 48% of the patients were male and 59% were Black. The mean MCS score was 50.6 ± 10.0, and 21 patients (21%) had an MCS score ≤42. Our mean follow-up was 23.5 ± 9.8 months (range 2 – 34). 16 patients died (16%) and 79 patients were hospitalized at least once (80%). A Cox proportional hazards model controlling for age, race, gender, comorbid medical conditions, and MCS score demonstrated that an MCS score ≤42 predicted both mortality and hospital admission.

| | Relative Risk | 95% CI | P-Value |
|---|---|---|---|
| Morality | 4.73 | 1.35 – 16.6 | 0.02 |
| Hospitalization | 1.73 | 1.01 – 2.99 | 0.05 |

CONCLUSION: Depression as defined by an MCS score ≤42 on the SF-36 is a useful predictor of hospital admission and mortality in HD patients. Further investigations into the effect of depression on outcomes in HD patients are in progress. More specific depression case-finding instruments will be used in future studies and compared to the SF-36.

**EFFECT OF A NATIONWIDE PROGRAM OF EDUCATIONAL OUTREACH VISITS TO IMPROVE THE PROCESSES OF CARE FOR PATIENTS WITH TYPE 2 DIABETES MELLITUS.** P. Durieux[1], P. Ricordeau[2], A. Weill[2], G. Chatellier[1], N. Vallier[2], A. Bissery[3], P. Fender[2], H. Allemand[2]; [1]Faculté de Médecine Broussais Hôtel Dieu, Paris, France; [2]CNAMTS, Paris, France; [3]CIC, Hôpital Européen Georges Pompidou, Paris, France *(Tracking ID #50600)*

BACKGROUND: Despite increasing consensus regarding appropriate processes of care, variations in the quality of care exists for patients with diabetes mellitus. The objective of the study was to determine whether educational outreach visits increase the frequency with which appropriate tests for type 2 diabetes mellitus are ordered by physicians.
METHODS: An interrupted time-series study with audits of practice before, during and after intervention was conducted between January 1998 and December 2000. The study was performed in physicians' offices throughout France. All physicians who diagnosed one case of type 2 diabetes mellitus during a 6-month intervention period (n = 22,940) were included in the study. Educational outreach visits (office visits or phone discussions) were offered by trained medical advisors salaried by health insurance funds. During the visits, the main recommendations of national guidelines on diabetes mellitus management were discussed.
The Main outcome measures were, the number of HbA1c measurements recorded monthly in the French national medical insurance computer database and the proportion of diabetic patients for whom one test had been reimbursed during the previous 6 months (HbA1c, fasting blood glucose) or previous 12 months (serum cholesterol, serum creatinine, urine microalbumin, electrocardiogram, ophthalmologic examination).
RESULTS: A total of 15,522 office visits and 9,062 telephone discussions were performed. The increase of the monthly proportion of the number of HbA1c tests to the total number of laboratory tests was higher during the intervention period than during pre-intervention period (p < 0.0001) and post-intervention period (p < 0.001). HbA1c was measured at least once in 41.2 % of patients before (n = 651,574) and in 60.5% after the intervention (n = 911,871). The percentages were 10.6% and 15.3% for urine microalbumin, and 79.3% and 72.0% for fasting blood glucose, respectively. No important changes were observed for other tests.
CONCLUSION: Physician to physician outreach visits constitute an effective approach to improve the processes of care for diabetes mellitus. This strategy can be utilized to implement national guidelines in a national program.

**MISSED OPPORTUNITIES FOR INFLUENZA VACCINATION OF ADULTS WITH DIABETES IN PRIMARY CARE SETTINGS.** L. Egede[1]; [1]Medical University of South Carolina, Charleston, SC *(Tracking ID #50796)*

BACKGROUND: The Advisory Committee on Immunization Practices strongly recommends yearly influenza vaccination for individuals with diabetes starting at 6 months of age. Previous studies suggest that vaccination rates in primary care may be suboptimal. This study analyzed data from the 1999 National Health Interview Survey (NHIS) to identify missed opportunities for vaccination of adults with diabetes in primary care settings.
METHODS: The sample adult file of NHIS is a nationally representative household survey of non-institutionalized, civilian adults ≥18 years old in the U.S. Diabetes was based on an individual reporting that a doctor told them that they had diabetes excluding a diagnosis during pregnancy. Influenza vaccination rate was defined as percentage of adults that reported receiving the influenza vaccine in the past year. Missed opportunity for vaccination was defined as the percentage of adults with diabetes with ≥2 primary care visits in 1999 who did not receive the influenza vaccine. Vaccination rates were compared across categories of primary care visits. Multiple logistic regression was used to compare vaccination rates by primary care visits controlling for race/ethnicity, age, sex, marital status, education, income, census region, and number of high-risk chronic conditions. STATA was used to calculate population estimates and confidence intervals to account for the complex sampling design of the NHIS.
RESULTS: Overall, 55% of adults with diabetes received the influenza vaccine in 1999. Vaccination rates were higher in individuals with ≥2 visits than in those with ≤2 visits (57% vs. 43%, p < 0.0001). Vaccination rates were 27%, 33%, and 48% in individuals with 0, 1, and 2 – 3 primary care visits respectively. Similarly, vaccination rates were 58%, 58%, and 63% in those with 4 – 9, 10 – 12, and ≥13 visits respectively. Adjusting for covariates, individuals with 2 – 3 (OR = 2.05, CI 1.01 – 4.18) and 4 – 9 (OR = 2.76, CI 1.39 – 5.50) visits had higher odds of being vaccinated than individuals with no primary care visits. Similarly, individuals with 10 – 12 (OR = 2.86, CI 1.38 – 5.90) and ≥13 (OR = 3.28, CI 1.63 – 6.58) visits were more likely to be vaccinated. Opportunity to provide influenza vaccination was missed for up to 43% of adults with diabetes seen in primary care settings in 1999.
CONCLUSION: Despite repeated opportunities to vaccinate against influenza, vaccination rates in adults with diabetes seen in primary care were less than optimal. A substantial proportion of adults with diabetes are likely to benefit if more aggressive vaccination strategies are instituted in primary care settings.

**CHANGE IN SF-36 AND RISK OF HOSPITALIZATION AND MORTALITY.** V.S. Fan[1], D.H. Au[1], M. Mcdonell[1], S.D. Fihn[1]; [1]University of Washington, Seattle, WA *(Tracking ID #52337)*

BACKGROUND: The SF-36 has been found to predict clinical outcomes. We sought to determine whether changes in SF-36 scores over 1-year were associated with risk of hospitalizations and mortality.
METHODS: We analyzed data from patients enrolled in the Ambulatory Care Quality Improvement Project (ACQUIP). 7,702 patients returned the SF-36 at both baseline and 1-year and were then followed for a mean of 617 (±148) days. The 1-year change in the physical (PCS) and mental (MCS) component summary scores was calculated. Cox proportional hazards methods estimated the risk of hospitalization and death from any cause after adjusting for baseline demographic factors and comorbidity.
RESULTS: The mean baseline PCS score was 33.4 (SEM ± 0.13) at baseline, with a mean 1-year decrease of -0.5 (±0.09). The mean MCS score was 46.8 (±0.15) at baseline, with a mean 1-year increase of 1.3 (±0.11). During the follow-up period, there were 522 (6.8%) deaths and 1841 (23.9%) hospitalizations among the study cohort. After adjusting for baseline PCS scores, age, VA hospital site, distance to the VA, and comorbidity, a decrease in the PCS greater than 5-points was associated with an increased risk of both hospitalization and mortality. Compared to those with no change in the PCS, the hazard ratios (HR) for dying or being hospitalized during the subsequent year in patients with a decrease in PCS of more than 10-point were 2.1 (95% CI 1.54 – 2.74), and 1.6 (1.4 – 1.9), respectively. A 10-point decrease in the MCS was also associated with an increased risk of both primary outcomes (HR for death, 1.5, 1.1 – 2.0; HR for hospitalization 1.4, 1.2 – 1.7). Conversely, an improvement in PCS of 10 points or more was associated with a decreased risk of hospitalizations, (HR 0.76, 0.62 – 0.92).
CONCLUSION: After adjustment for baseline scores, 1-year change in the PCS scores of the SF-36 is associated with both mortality and hospitalizations. Changes in the MCS were also associated with death and hospitalization but only when greater than 10 points. This suggests that interventions that stabilize or improve quality of life may be associated with improved long-term outcomes.

**NATIONAL TRENDS IN ANTIARRHYTHMIC AND ANTITHROMBOTIC MEDICATION USE IN ATRIAL FIBRILLATION.** M.C. Fang[1], R.S. Stafford[2], J.N. Ruskin[1], D.E. Singer[1]; [1]Massachusetts General Hospital, Boston, MA; [2]Stanford Center for Research in Disease Prevention, Palo Alto, CA *(Tracking ID #50513)*

BACKGROUND: Atrial fibrillation (AF) is the most common cardiac arrhythmia associated with significant medical complications. Medications can frequently prevent or ameliorate these consequences. We examined evolving trends in the medical treatment of AF in the United States.
METHODS: Data from 1177 visits with AF were obtained from the National Ambulatory Medical Care Surveys (NAMCS), a nationally representative assessment of office-based practice. Analyses were restricted to visits with internists, general practitioners, family practitioners or cardiologists. We compared medication use in earlier years (1991 – 1996) to more recent years (1997 – 1999) for ventricular rate control (digoxin, beta-blockers and calcium channel blockers) and sinus rhythm maintenance (Vaughan-Williams classification Class IA, Class IC antiarrhythmics, and the newer medications amiodarone and sotalol). In assessing trends in antithrombotic use (oral anticoagulants and aspirin), we excluded 20 visits by patients with potential contraindications to anticoagulation.
RESULTS: The estimated number of annual visits for AF in the United States increased from 2.9 million in 1991 to 4.4 million in 1999. Overall use of drugs for rate control has declined, from 66% of visits in 1991 – 1996 to 56% in 1997 – 1999 (p = 0.03). This was primarily due to the declining use of digoxin, from 58% to 40% (p < 0.001). Beta-blocker use was unchanged (13% to 15%, p = 0.51) as was calcium channel blocker use (17% to 13%, p = 0.10). Overall use of drugs for the maintenance of sinus rhythm did not change significantly, from 11.2% of visits in 1991 – 1996 to 13.3% in 1997 – 1999 (p = 0.67). However, there have been shifts in the use of individual medication classes. Class IA drug use fell from 7.9% to 2.7% (p = 0.04), reflecting the declining use of quinidine. Class IC use modestly increased from 1.0% to 3.9% (p = 0.002). The most commonly reported sinus rhythm medication by 1997 – 1999 was amiodarone, increasing from 1.3% to 5.7% of visits (p < 0.001). Oral anticoagulant use increased from 35% in 1991 – 1996 to 49% in 1997 – 1999 (p = 0.001). Anticoagulant use increased the most in patients aged 80 years or older, from 27% to 53% (p = 0.002). Of those not on oral anticoagulants, reported aspirin use did not change (15% to 16%, p = 0.96).

CONCLUSION: The pharmacologic treatment of AF has evolved over time. Use of medications for rate control has declined in recent years as a result of decreasing digoxin use. Although guidelines suggest using digoxin as second-line therapy for rate control, we did not see a concomitant increase in beta-blocker or calcium channel blocker use. This may indicate an under-use of these medications in AF. In the maintenance of sinus rhythm, amiodarone has replaced quinidine as the dominant antiarrhythmic. Oral anticoagulant use has increased over time, surprisingly even in the most elderly.

**SEATTLE SCHOOL BASED HEALTH CLINICS: A DESCRIPTIVE STUDY.** S. Feinglass[1], R. Pfohman[2], T. Koepsell[1]; [1]University of Washington, Seattle, WA; [2]Youth Health Services, Public Health Department - Seattle & King County, Seattle, WA *(Tracking ID #51569)*

BACKGROUND: School-based health clinics (SBHC) are fast becoming the teenagers' choice of site for medical care. Given this teen preference, many public health departments are collaborating with schools to provide services. Seattle has a unique SBHC system based on a partnership between individual schools, local health care agencies and the Seattle-King County Department of Public Health(SKCPH). This study describes the types of services offered at the clinics and characterizes the most common diagnoses.
METHODS: Descriptive statistics were generated from patient encounter forms and submitted to SKCPH from individual SBHCs.
RESULTS: During the school year 1999 – 2000, 51% (4,881) of all students enrolled in 8 Seattle high schools used SBHCs. SBHCs were accessed at a rate of 4.7 visits per user, for a total of 14,920 visits. Females enrolled at a higher rate (59%) and utilized significantly more SBHC services than did males. The majority of users were ethnic minorities (73%). The types of services varied. Mental health visits accounted for 29% of all visits to the SBHCs; depression and suicide risk accounted for 20% of these visits. Wellness visits represented 34% of all visits, with the majority being for contraception. Illness visits comprised the remaining 37% of all SBHC encounters.
CONCLUSION: Based on descriptive data, the Seattle school-based clinics serve a significant portion of Seattle's youth for both mental and physical health. These data are useful for future resource allocation and programming by the department of public health and the Seattle school system.

**SUBOPTIMAL MANAGEMENT OF CHRONIC STABLE ANGINA IN A PRIMARY CARE SETTING.** S.D. Fihn[1], M. Burman[2], M.B. Mcdonell[1], J. Henikoff[1]; [1]University of Washington, Seattle, WA; [2]VA Puget Sound Health Care System, Seattle, WA *(Tracking ID #51644)*

BACKGROUND: How well primary care physicians manage chronic stable angina is unknown. We performed a cross-sectional analysis using data on patients with presumptive ischemic heart disease (IHD) enrolled in the Ambulatory Care Quality Improvement Project (ACQUIP) — a randomized controlled trial of audit and feedback conducted at 7 VA GIM clinics.
METHODS: We examined data for patients with IHD at one of the 7 GIMCs who completed baseline questionnaires. All GIM patients were mailed an initial inventory of active medical conditions. Patients who reported angina, coronary artery disease, "heart attack", coronary artery bypass (CABG), or balloon angioplasty (PTCA) met criteria for IHD and were sent the Seattle Angina Questionnaire (SAQ) which includes scales for symptom severity and symptom burden. Computerized databases were used to identify prescriptions for antianginal drugs (beta-blockers, calcium channel blockers, long-acting nitrates) in the 90 days before and after return of the SAQ, contraindications to each medication (e.g., drug interactions or bradycardia for beta-blockers), cardiology clinic visits, and diagnostic tests (e.g., perfusion imaging). Successful management of angina was defined according to ACC/AHA/ACP-ASIM guidelines as control of anginal symptoms or consideration for revascularization for symptoms refractory to medical management.
RESULTS: 2,552 of the 6,995 patients enrolled at the start of the study met criteria for IHD and were sent the SAQ. Of 1,859 (73%) who returned at least one mailing of the SAQ, 48% reported prior myocardial infarction (MI) and 47% reported prior revascularization (CABG and/or PTCA). 710 (40%) reported angina weekly or more often and 856 (53%) reported moderate to severe limitation in activities of daily living due to angina. Of the 1364 (75%) without apparent contraindications to any antianginal medication, 56% were on none. Of the 574 who reported a prior MI and had no contraindication, only 37% were receiving a beta-blocker. Using extremely liberal criteria (e.g., including probable ineffective doses of medication and assuming an imaging test or cardiology meant consideration for revascularization), only 42% of patients appeared to be treated effectively in accordance with AHA/ACC/ACP-ASIM guidelines.
CONCLUSION: A majority of patients with self-reported chronic stable angina who were managed in a primary care setting appeared to have inadequately controlled symptoms and a large number were receiving no antianginal medications. These results suggest interventions to improve the management of this common problem should be evaluated.

**TRANSLATING THE PNEUMONIA SEVERITY INDEX INTO PRACTICE: A TRIAL TO INFLUENCE THE ADMISSION DECISION.** M.J. Fine[1], D.M. Yealy[1], T.E. Auble[1], R.A. Stone[1], J.R. Lave[1], T.P. Meehan[2], J.M. Fine[2], L.G. Graff[2]; [1]University of Pittsburgh, Pittsburgh, PA; [2]Qualidigm, Middletown, CT *(Tracking ID #47092)*

BACKGROUND: The Pneumonia PORT Severity Index (PSI) is a validated method for identifying patients (pts) with community-acquired pneumonia (CAP) at low risk for 30-day mortality, yet few studies have assessed its use as a guide for admission (adm). We compared the effectiveness and safety of 3 PSI implementation strategies of low (LO), moderate (MOD), and high (HI) intensity to increase the proportion of low-risk non-hypoxemic (LRNH) pts presenting to Emergency Departments (EDs) treated as out-pts.
METHODS: The 32 participating hospitals in PA and CT were randomly assigned to 3 treatment arms (8-LO, 12-MOD, and 12-HI). The LO arm, a usual care control, received a PSI-based guideline recommending that LRNH pts (PSI risk classes I-III) presenting to the ED be treated as out-pts. The MOD arm included the LO intervention, and in addition, the collaborating peer review organizations (PROs) from the respective states provided the ED director with pre-intervention hospital-specific data on the proportion of hospitalized CAP pts who were low risk, and requested a quality improvement plan specifically addressing the adm decision; individual ED MDs also participated in a pre-intervention educational session on use of the guideline. The HI arm included the MOD intervention plus a paper algorithm to calculate the PSI score and guide the adm decision for each pt, provided pt-specific audit and feedback to MDs, and used bimonthly plan-do-study-act cycles in the ED to improve guideline adherence. Adm decisions in all arms remained at the providers' discretion. Adult pts meeting standard clinical and radiographic eligibility criteria for CAP treated in the ED were prospectively enrolled (1/15/01 – 8/31/01). The primary outcome was the proportion of LRNH pts treated as out-pts; secondary outcomes were 30-day mortality and subsequent hospital adm for out-pts. A multilevel logistic regression model was used to account for the clustering of pts within medical providers within EDs.
RESULTS: There were 1,246 LRNH pts (mean age 54.2 yrs, 46.3% male, 84.4% white) with 22.5% in LO, 38.6% in MOD, and 38.9% in HI arms. More LRNH pts were treated as out-pts in MOD (62.6%) and HI (62.5%) than in LO (37.9%) arms. Adjusted for state and PSI risk class, the odds of out-pt treatment were 3.3 for MOD relative to LO (95% CI 1.8 – 5.9; $p < 0.001$), and 2.6 for HI relative to LO (95% CI 1.5 – 4.7; $p = 0.001$). MOD and HI arms did not differ significantly ($p = 0.38$). No significant treatment differences were observed for mortality ($p = 0.34$) or subsequent adm for out-pts ($p = 0.37$) across arms.
CONCLUSION: Both MOD and HI intensity strategies to implement the PSI-based guideline increased the proportion of LRNH pts with CAP treated as out-pts without compromising medical outcomes. These data suggest that a MOD intensity PSI implementation strategy, typical of focused PRO quality improvement activities, is comparable to a HI intensity strategy.

**HOSPITAL CHARACTERISTICS RELATED TO EARLY ADOPTION OF CLINICAL PRACTICE GUIDELINES.** S. Flach[1], K.D. Mccoy[2], B.J. Bootsmiller[2], B.N. Doebbeling[1]; [1]University of Iowa, Iowa City, IA; [2]Iowa City VAMC, Iowa City, IA *(Tracking ID #51890)*

BACKGROUND: The Veterans' Health Administration (VA) has been actively implementing clinical practice guidelines (CPGs) to improve quality as part of a reengineering effort since 1995. In a national survey of VAMCs, we discovered significant variation in the timing of CPG implementation. We hypothesize that early adopting facilities differ on the basis of economic factors relating to the demand for care and ability to supply CPGs.
METHODS: We used data from a 2001 survey of key VA informants involved in quality management and CPG implementation to determine when hospitals adopted two CPGs: COPD (N = 82) and Depression (N = 85). Early adopter hospitals were defined as those implementing the CPG prior to January 1998. Potential explanatory variables from our survey, the American Hospital Association Annual Survey, the Veterans' Satisfaction Survey, and the Veterans' Health Survey were considered in multivariate logistic regression models.
RESULTS: Early adoption of the COPD guideline was related to better interdisciplinary teamwork (OR = 2.03, $p = .06$), sufficient personnel support (OR = 2.17, $p = .02$), and negatively related to the proportion traveling more than 1 hour (a marker for reduced demand for VA services, OR = 0.03, $p = .06$). Early adoption of the Depression guideline was related to sufficient financial support for quality improvement (OR = 2.03, $p = .02$) and length of stay (a marker for increased use of hospital resources, OR = 1.03, $p = .03$), and inversely related to the degree of interdisciplinary teamwork (OR = 0.52, $p = .07$).
CONCLUSION: Early adoption of quality enhancing CPGs prior to system-wide diffusion within the VA is related to resource availability, level of demand, and hospital utilization. Early adoption of CPGs was related to factors representing the ability to supply CPGs and the demand for CPGs. These factors likely predict the adoption of other elective quality initiatives.

**PHYSICIAN GENDER PREDICTS PATIENT SATISFACTION IN PRIMARY CARE PRACTICE.** K. Franco[1], D.L. Bronson[1], C. Deyling[1], V. Brown[1], H. Graman[1], R. Kratche[1]; [1]Cleveland Clinic Foundation, Cleveland, OH *(Tracking ID #51987)*

BACKGROUND: Patient satisfaction (PS) with primary care physicians' medical care depends on many individual interaction factors. We examined the role of physician gender in predicting PS in a large group of primary care physicians-general internal medicine, pediatrics, and family medicine (PCP) in community practice settings.
METHODS: PS was measured with the 11 item Visit Specific Questionnaire in 6558 patients following encounters with 78 primary care physicians (29 women, 49 men) in 2000 (minimum 30 patients/physician). The average number of patients was 84 ± 50. The median percent excellent score for the 4 physician specific questions and overall PS was compared between male and female physicians using the Wilcoxon Rank sum test.
RESULTS: See Table.
CONCLUSION: Although PCP's as a group are believed to be particularly attentive to their personal interactions and style of educating about illness, patients report differences which may be based on physician gender. Whether attributed to their doctor or part of the actual experience, at least 2 aspects of PS were higher when patients saw a female physician. Future research will determine if patient gender significantly influences this finding.

**Relationship of Physician's Gender with Patient Satisfaction**

| | **Female Physicians (29)** | **Male Physicians (49)** | |
|---|---|---|---|
| # of Patients | 2580 | 3978 | |
| | % Excellent | % Excellent | P-value |
| Time Spent with Physician | 57.0 | 55.0 | 0.12 |
| Explanation of Care | 62.0 | 56.0 | 0.050 |
| Technical Skills | 69.0 | 65.0 | 0.20 |
| Personal Manner of Physician | 78.0 | 72.0 | 0.038 |
| Oveall Satisfaction | 59.0 | 55.0 | 0.085 |

**ANALYSIS OF MEDICATION SAFETY ALERTS FOR INPATIENT DIGOXIN USE WITH COMPUTERIZED PHYSICIAN ORDER ENTRY.** W.L. Galanter[1], R. Didomenico[1], A. Polikaitis[2]; [1]University of Illinois at Chicago, Chicago, IL; [2]Cerner Corporation, Kansas City, MO *(Tracking ID #50281)*

BACKGROUND: Medication errors are a costly and morbid reality in our health care system. A recent strategy for error reduction is the provision of alerts to improve the appropriateness of medication use. We report on an effort to provide alerts for inpatient use of digoxin (Dig) at a University hospital using medication safety alerts (alerts) that appear to the prescribing clinician in real-time during the order process, as well as alerts that are automatically generated in response to abnormal laboratory values.
METHODS: The alerts target factors other than renal function that may elevate Dig levels or increase the risk of Dig toxicity. The alerts utilize the computerized decision support capabilities of our clinical information system (Discern Expert, Cerner Corp.). Alerts were designed to notify prescribers, during the order process, of the potential for Dig toxicity under the following circumstances: ordering Dig in patients with concomitant electrolyte abnormalities or elevated Dig levels; ordering Dig in patients who were receiving potentially interacting drugs; and ordering potentially interacting drugs in patients receiving Dig. Alerts were also generated and printed in response to electrolyte abnormalities and elevated Dig levels in patients with orders for Dig. We characterized the utility of the alerts based on the subsequent actions of the prescribing clinician. Alerts were considered useful if the action recommended in the alert was performed. Alerts were analyzed for 6 weeks after implementation.
RESULTS: 228 orders or laboratory results initiated 296 alerts, thus an order often initiated more than one alert. Practitioners complied with 62% of the recommendations suggested by the alerts. Real-time alerts generated during the ordering process resulted in lower utility (57 ± 5%) than those printed in response to abnormal laboratory results (77 ± 4%). The utility was deemed uncertain in 6% of the alerts, as the intent of the prescriber at the time of order placement could not be determined. Only four of the 296 (1.4%) alerts generated were judged to be erroneous.
CONCLUSION: Our analysis investigated the utility of safety alerts on inpatient prescribing of Dig. Due to the real-time nature of some of the alerts, there was some uncertainty in determining the compliance with alerts, as the intent of the prescriber at the time of order placement could not always be determined. Alerts resulted in the recommended action being followed in 62% of the cases, representing a discrepancy between the alert recommendations and actual clinical practice. Understanding this discrepancy is important as alerts of this type become more common in the future. Alerts triggered by abnormal laboratory values and printed at selected locations were more likely to be followed than real-time alerts generated during the medication ordering process. We next plan on implementing Dig alerts related to renal function and analyzing elevated Dig levels as an outcome measure.

**EVALUATION OF AN ACTIVE COMPLAINT SURVEILLANCE PROGRAM.** J.M. Garbutt[1], D. Bose[2], B.A. Mccawley[2], T. Burroughs[2], G. Medoff[1]; [1]Washington University in St Louis, St Louis, MO; [2]Barnes-Jewish Hospital, St Louis, MO *(Tracking ID #50266)*

BACKGROUND: Quality in health care encompasses technical quality and service quality. Improvement in service quality can improve patient outcomes and satisfaction with care. The study objectives were to describe service quality problems in a large tertiary care teaching hospital and evaluate the effect of an active complaint surveillance program on patient satisfaction.
METHODS: We conducted a pre-post intervention study with temporal controls at a tertiary care teaching hospital in St Louis, Missouri. Patients admitted to a general medical unit between October 2 and December 22, 2000 were interviewed by a patient advocate to identify patient complaints about service quality. Complaints were reported directly to hospital staff. Patient satisfaction was measured using a validated instrument administered by telephone interview 7 to 10 days after discharge. Patient complaints were recorded and categorized. Descriptive variables were abstracted from the hospital's patient information systems.
RESULTS: 1023 of 1218 patients (84%) admitted to the general medical unit during the 12-week study period were interviewed. 46% were male, mean age was 60.3 years, and mean unit length of stay was 3.3 days. The advocate completed 1233 patient interviews and received 695 complaints about service quality. 50% of complaints concerned local unit care, most frequently delays in response to a patient request. Patients also complained about food, delays in admission and discharge and inadequate communication about procedures. Concurrently, the hospital's formal reporting system received 12 complaints. Despite responses to most specific patient complaints concerning local unit care (e.g. timely provision of analgesics, warming food, transfer to a private room), patient satisfaction scores were unchanged during the intervention.
CONCLUSION: Active complaint surveillance using pre-discharge patient interviews by a patient advocate provided an effective method for identification of local and system-wide service quality problems in a large tertiary care hospital. Providing remedies to many identified problems in local care delivery did not improve patient satisfaction scores. Many identified gaps in service quality require remediation at the system level.

**PHYSICIAN CHARACTERISTICS PREDICTING RECEIPT OF BREAST-CONSERVING SURGERY.** M.A. Gilligan[1], R. Sparapani[1], P. Laud[1], A.B. Nattinger[1]; [1]Medical College of Wisconsin, Milwaukee, WI *(Tracking ID #51883)*

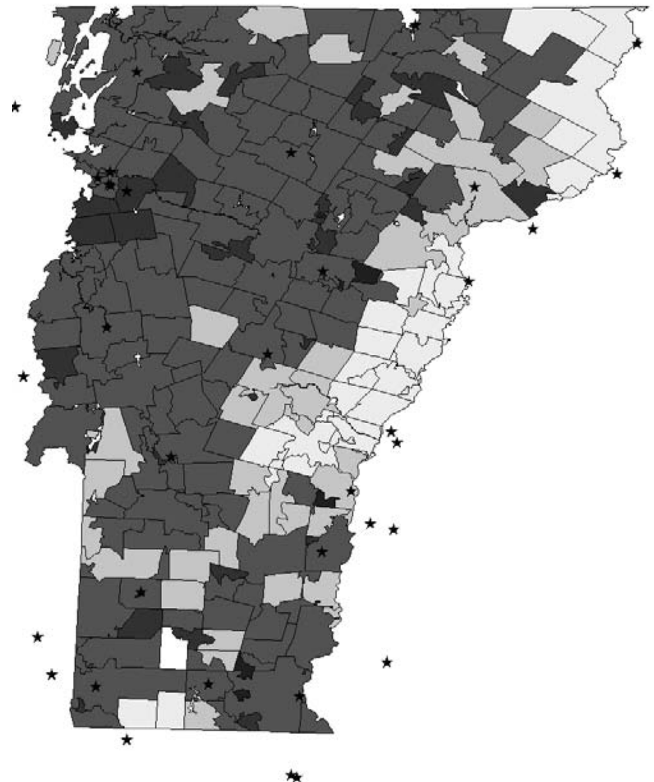
BACKGROUND: We evaluated physician characteristics with respect to receipt of breast-conserving surgery (BCS) in a cohort of older women using the Surveillance, Epidemiology, and End Results (SEER)-Medicare linked database.
METHODS: A cohort of women age 65 years and older, diagnosed with early stage breast cancer in 1995–96 who had undergone surgical treatment for breast cancer was selected from the SEER database, a population-based tumor registry. The surgeon was identified through Medicare claims and selected physician characteristics from the AMA physician masterfile. Logistic regression was used to predict receipt of BCS versus mastectomy. Physician characteristics included in the model were age, gender, race, academic affiliation, and physician volume of breast cancer cases over two years.
RESULTS: Of the 7,791 women in the cohort, 51.4% received BCS and 48.6% mastectomy. These patients were operated on by 1,501 surgeons, 8% of whom were female, 1.9% with a medical school affiliation, and with a mean age of 50 (SD 10.4). The table provides odds ratios (OR) for patient receipt of BCS by physician characteristics. Model A refers to a logistic regression incorporating only the physician characteristics. Model B also controls for patient factors including age, race, county-level population, Medicaid status, and SEER site.
CONCLUSION: Among a cohort of older women with early stage breast cancer, female MD gender, younger MD age, higher MD patient volume, and medical school affiliation all predicted greater use of BCS, independent of known patient factors relating to choice of surgery.

**Logistic Regression of Physician Characteristcs Predicting Use of BCS**

| MD Characteristic | Model A | Model B |
|---|---|---|
| Female | 1.57 (1.34–1.85) | 1.27 (1.07–1.51) |
| Age (per year) | 1.00 (1.0–1.01) | 0.99 (0.99–1.0) |
| Medical School | 1.50 (1.09–2.07) | 1.39 (1.0–1.93) |
| Volume, 1–3 cases | 0.65 (.57–.74) | 0.61 (.53–.69) |
| Volume, 4–8 cases | 0.86 (.78–.95) | 0.83 (.75–.92) |

**MEASURING SCREENING MAMMOGRAPHY PENETRATION IN VERMONT USING A STATEWIDE REGISTRY.** A. Goel[1], R.G. Pinckney[1], B. Littenberg[1], B.M. Geller[1], P. Vacek[1], M. Coahran[1]; [1]University of Vermont, Burlington, VT *(Tracking ID #50542)*

BACKGROUND: Screening mammography penetration is the percentage of eligible women in a population who have received mammography. This measure has never been reported with U.S. Census data for all women across a state. The Vermont Mammography Registry contains every mammogram performed within the state with the date of birth and ZIP code of the woman examined since 1994. However, some Vermonters receive mammograms in other states.
METHODS: The Health Plan Employer Data and Information Set (HEDIS) defines the year 2000 penetration rate of screening mammography as the number of women between the ages of 52 and 69 who received a mammogram in 1999 or 2000 divided by the total number of women in that age group. The numerator was the number of women receiving a mammogram in a ZIP code during that time interval. The denominator was the number of women counted by the U.S. 2000 Census in a ZIP Code Tabulation Area (ZCTA), an approximation of the U.S. Postal Service ZIP codes. Rates were calculated for the state and each ZCTA.



RESULTS: In 2000, the state screening penetration rate was 63.2%. The figure stratifies ZCTAs by penetration quartiles. Heavier shading indicates a higher mammography screening penetration rate. Stars represent mammogram facilities. Due to discrepancies between ZIP codes and ZCTAs, penetration rates over 100% are occassionally identified. The average ZCTA penetration rate was 65.4% (range 0 – >100%). The penetration rate for ZCTAs whose closest mammogram center was within the state was much higher than the penetration rate for ZCTAs whose closest mammogram center was outside the state (74.0% vs. 22.3%, $p < 0.0001$).

CONCLUSION: Screening mammography penetration can be measured with a statewide mammography registry and U.S. Census data. The results are limited by the databases used. This information can be used to focus quality improvement efforts in areas of the state with lower screening mammography penetration rates.

**IMPACT OF THE ALERENET MONITORING SYSTEM ON OUTCOMES AMONG PATIENTS WITH DECOMPENSATED HEART FAILURE.** L.R. Goldberg[1], J.D. Piette[2], M.N. Walsh[3], T.A. Frank[4], B. Jaski[5], A.L. Smith[6], R. Rodriguez[7], D.M. Mancini[8], L.A. Hopton[1], C.A. Mah[9], E. Loh[1]; [1]University of Pennsylvania, Philadelphia, PA; [2]University of Michigan, Ann Arbor, MI; [3]Indiana University, Indianapolis, IN; [4]The Sanger Clinic, Charlotte, NC; [5]Sharp Memorial Hospital, San Diego, CA; [6]Emory University, Atlanta, GA; [7]Chestnut Hill Cardiology, Flourtown, PA; [8]Columbia University, New York, NY; [9]Harvard University, Boston, MA *(Tracking ID #50337)*

BACKGROUND: Prior studies have suggested that intensive outpatient monitoring of weight and symptoms may decrease hospitalizations for patients with congestive heart failure. We determined whether the AlereNet monitoring system decreases hospitalizations and improves other outcomes among advanced heart failure patients.
METHODS: 280 patients with class III or IV heart failure were identified and randomized at discharge from 8 tertiary and 8 community hospitals. In addition to usual care, patients randomized to the intervention received the AlereNet monitoring system which included an electronic scale placed in patients' homes and an individualized symptom reporting system linked via a standard phone line to a database monitored by cardiac nurses. Intervention patients weighed themselves and responded to queries about heart-failure related symptoms twice daily. Nurses reviewed their status and followed-up with them or their physician as necessary. Baseline and follow-up data collection included measures of patients' demographics, comorbidities, severity of heart failure, service utilization, physical functioning, quality of life and satisfaction with care. Vital status at 6 months was determined for all but 2 participants. Major endpoints including time to rehospitalization and death were examined using Kaplan-Meier survival curves. Categorical outcomes such as the proportion of patients who died at home or who sought care through emergency departments were examined using appropriate chi-square tests.
RESULTS: Enrollees were on average 59 (SD 15) years of age with an ejection fraction of 22% (SD 7). At follow-up, there was no statistically significant difference in hospitalization rates or ER visits between intervention and control groups. However, less than half as many intervention patients had died by the six-month follow-up than controls (7% versus 18%, p = 0.003). Among patients surviving until the 6-month follow-up, intervention and control groups had equivalent levels of HQOL and satisfaction with care.
CONCLUSION: This is the first large randomized trial to determine the efficacy of a technology-based monitoring system in the care of patients with advanced congestive heart failure. Results indicate that the intervention had no impact on the time to patients' first readmission or their HQOL, although less than half as many intervention patients died within 6 months compared to controls.

**A EUROPEAN VIEW OF APPROPRIATENESS AND DIAGNOSTIC YIELD OF COLONOSCOPY: A MULTICENTER STUDY.** J.J. Gonvers[1], V. Wietlisbach[2], J.P. Vader[2], F. Froehlich[1], B. Burnand[2]; [1]Medical Outpatient Clinic, University of Lausanne, Lausanne, Switzerland; [2]Institute of Social and Preventive Medicine, University of Lausanne, Lausanne, Switzerland *(Tracking ID #51187)*

BACKGROUND: Health care systems in Europe differ widely. Differences in colonoscopy practice patterns have never been assessed prospectively and simultaneously in several countries. In the context of such a vast undertaking, one of the study aims was to explore whether the use of explicit appropriateness criteria contained in a web-based decisional tool (www.epage.ch) could significantly improve diagnostic yield.
METHODS: Patients referred for colonoscopy were consecutively included in a large observational study (21 centers, 11 countries). Appropriateness and diagnostic yield of colonoscopy were evaluated using a web-based decisional tool previously developed by a validated (RAND) expert panel method, using a 9-point scale (1 – 3: inappropriate; 4 – 6: uncertain; 7 – 9: appropriate).
RESULTS: 5,291 consecutive patients entered the study (48.5% men, mean age 57.7?17.1). Main indications for colonoscopy were: post-polypectomy surveillance (18%), hematochezia (17%), uncomplicated abdominal pain (13%), screening for cancer in asymptomatic patients (11%), uncomplicated diarrhea (8%), iron-deficiency anemia (7%), evaluation of IBD (7%). A significant diagnosis was found in 23% of colonoscopies: cancer (4%), adenomatous polyps ?10 mm (15%), IBD (3%), angiodysplasia (1%). According to the web-based decisional tool, the indications for colonoscopy were appropriate in 45.5% of cases, uncertain in 26.9% and inappropriate in 27.6%. A clinically significant diagnosis was found in 30% of appropriate colonoscopies vs. 19% and 22% respectively for inappropriate and uncertain colonoscopies (p < 0.001). Out of the 191 cancers, 17 (9%) were found in colonoscopies judged inappropriate, the main reasons being as follows: in hematochezia, inappropriateness was due to the non-performance of anoscopy or sigmoidoscopy (2 cases) or to the fact that a bleeding source was already known and should have been treated before colonoscopy (6 cases). In 5 cases, the interval between polypectomy and surveillance colonoscopy was too short (<3 years) to be considered appropriate.
CONCLUSION: 1 in 5 colonoscopies revealed a clinically-relevant diagnosis. 1 in 4 colonoscopies was performed for an inappropriate indication. The strict application without additional clinical judgement of EPAGE appropriateness criteria may lead to delayed or missed cancer diagnoses. (SNF No. 3200-057244.99)

**DO PHYSICIAN ATTITUDES ABOUT ANTIBIOTIC RESISTANCE AND APPROPRIATE ANTIBIOTIC USE CORRELATE WITH ACTUAL ANTIBIOTIC PRESCRIBING BEHAVIOR?** A.M. Deas[1], L.A. Crane[1], A.E. Barón[1], K. Gershman[2], J. Maselli[3], R. Gonzales[3]; [1]University of Colorado Health Sciences Center, Denver, CO; [2]Colorado Department of Public Health and Environment, Denver, CO; [3]University of California, San Francisco, San Francisco, CA *(Tracking ID #51011)*

BACKGROUND: Observational studies have shown that pediatricians have lower rates, and family physicians higher rates, of antibiotic prescribing for colds, non-specific upper respiratory tract infections (URIs) and acute bronchitis. Little is known about how physician attitudes about appropriate antibiotic use and antibiotic resistance vary across primary care specialties, and correlate with antibiotic use for these conditions.
METHODS: A mailed survey study of primary care physicians that received practice profiles and guidelines from the Colorado Medical Society Joint Data Project on Careful Antibiotic Use in 2000. Reflecting on their personal practice, participants provided Likert scale responses regarding (1) the impact of antibiotic-resistant bacteria (3 items), (2) the role of external factors in unnecessary antibiotic use (7 items), and (3) confidence in discussing appropriate antibiotic use with patients (4 items). We compared survey responses to antibiotic prescription rates for colds, URIs and bronchitis from administrative data.
RESULTS: 229 physicians completed surveys after 3 mailings (56% response rate). The sociodemographic characteristics of physicians were similar to state-wide estimates. Overall, 64% reported that antibiotic-resistant bacteria are negatively impacting the health of their patients. This belief was greater among pediatricians, but was not associated with antibiotic prescription rates (P = 0.40). The external factors "frequently" or "always" contributing to unnecessary antibiotic use for respiratory infections were: patient expectations (35%), diagnostic uncertainty (19%), follow-up concerns (15%), concern about patient dissatisfaction (10%), the need to "do something" (9%) and office visit time (7%). Each of these factors was cited less frequently by pediatricians, and was directly associated with antibiotic prescription rates (P < 0.05 for all comparisons). Using multivariable linear regression, the external factors scale was positively associated with antibiotic prescription rates (P = 0.008), and confounded the association between pediatric specialty and lower prescription rates (decreased specialty effect by 20%). Adjusted antibiotic prescription rates for pediatricians, internists and family physicians were: 13%, 27%, and 22%, respectively. Pediatricians also reported higher confidence in discussing appropriate antibiotic use for respiratory infections. However, prescription rates did not vary by confidence level (P = 0.94).
CONCLUSION: Differences in attitudes partially account for the lower antibiotic prescription rates observed among pediatricians. Recalibrating patient expectations (real or perceived) should be a major objective of interventions aimed at reducing unnecessary antibiotic use for respiratory infections.

**ALL STANDARD CARE IS NOT CREATED EQUAL: REDUCTION IN ALCOHOL CONSUMPTION IS INFLUENCED BY SITE OF CARE.** A.J. Gordon[1], S.A. Maisto[2], J. Conigliaro[1], K.L. Kraemer[3], M.A. Mcneil[3], M.E. Kelley[1]; [1]Center for Health Equity Research and Promotion, VA Pittsburgh and University of Pittsburgh, Pittsburgh, PA; [2]Department of Psychology, Syracuse University, Syracuse, NY; [3]University of Pittsburgh, Pittsburgh, PA *(Tracking ID #51655)*

BACKGROUND: Physician assessment for hazardous alcohol drinking can decrease alcohol use among primary care patients. We sought to determine, for patients randomized to a "usual care" care arm of a clinical trial, whether 1) these subjects reduced alcohol drinking over time and 2) reduction differences in alcohol use occurred between a Veterans Administration (VA) site, with on-site expert alcohol consultation and referral services, and other non-VA sites, without such services.
METHODS: We evaluated data from the Early Lifestyle Modification study, designed to compare the effects of two types of brief interventions (BIs) to usual care on alcohol use for hazardous drinkers in 12 primary care sites in Pittsburgh, PA. Sites included a VA medicine clinic, with on-site consultation services for problem drinkers, and other sites (non-VA, without such services). We screened for hazardous drinking with the Alcohol Use Disorders Identification Test (AUDIT, score ≥8) and quantity-frequency questions (≥16 drinks/week for males or ≥12 drinks/week for females). We randomized hazardous drinkers to BIs or usual care. Assessment of alcohol use occurred quarterly for one year using the Time Line Follow Back (TLFB). For usual care patients, we analyzed the effect of time and site (VA vs. non-VA) with repeated ANOVA for TLFB measures.
RESULTS: We screened 13,439 patients, of whom we randomized 201 to BIs and 100 to usual care. Subjects were enrolled at VA (n = 85) and non-VA (n = 216) sites. Of those in usual care, 30 were followed at VA and 70 at non-VA sites. Compared to non-VA subjects, veterans were older (mean age 57 vs. 41 years, p < 0.001), more likely male (100% vs. 62%, p < 0.001), and more likely minority (44% vs. 8% African American, p < 0.001). At baseline, usual care patients at the VA compared to those at non-VA sites had greater mean number of days abstinent/month (13.8 vs. 18.7, p = 0.03), but similar median number of drinks/month (61.5 vs. 43.9, p = 0.1) and median drinks/drinking day (5.0 vs. 5.3, p = 0.7). Over one year, usual care subjects increased mean days abstinent/month (17.2 to 18.4, p < 0.001), decreased median number of drinks/week (48.5 to 27.2, p<0.001), and reduced median drinks/drinking day (5.2 to 3.4, p < 0.001). Over time, compared to usual care subjects at non-VA sites, usual care subjects at VA sites had similar increases in mean days abstinent (p = 0.13), but significantly greater reductions in median drinks/month (p<0.01) and median drinks per drinking day (p < 0.02).
CONCLUSION: Patients' usual care significantly increased alcohol abstinence and reduced alcohol use over time. Future alcohol studies should account for differences in improvement of alcohol consumption measures over time in usual care subjects particularly between VA and non-VA primary care settings.

**INADEQUATE PHARMACEUTICAL MANAGEMENT OF METABOLIC RISK FACTORS IN PATIENTS WITH TYPE 2 DIABETES.** R.W. Grant[1], D.E. Singer[1], D.M. Nathan[2], J.B. Meigs[1]; [1]General Medicine Division, Massachusetts General Hospital, Boston, MA; [2]Diabetes Unit, MGH, Boston, MA *(Tracking ID #50324)*

BACKGROUND: Clinical trials have demonstrated the efficacy of pharmaceutical therapy to reduce elevated glycemic, blood pressure, and cholesterol levels, but most patients with diabetes do not reach recommended treatment goals. We sought to characterize physician prescription patterns over time and to assess the effect of prescription changes on risk factor levels in actual practice.
METHODS: We followed a prospective cohort of 598 adults with type 2 diabetes receiving primary care in an academic medical center from May 1997 to April 1999. We measured the following outcomes: 1) Among patients above nationally recommended treatment goals for

hemoglobin A1c (HbA1c), systolic blood pressure (SBP), or LDL-cholesterol (LDL-C) during the first 12-month time period (T1, 5/97 – 4/98), we determined what proportion had their corresponding pharmaceutical regimen increased during the following 12-month period (T2, 5/98 – 4/99); 2) For the overall cohort, we determined the impact of increased vs. unchanged medical regimens on corresponding risk factor levels from T1 to T2 using linear regression to control for baseline values.
RESULTS: Patients had a median of 4 office visits during each 12-month period. Hypertension (80% of cohort) and hyperlipidemia (55%) were highly prevalent. Roughly half of tested patients were above recommended treatment goal for each risk factor during T1. Untreated patients above goal for HbA1c in T1 were more likely to be initiated on medical therapy during T2 (58%) than untreated patients above goal for SBP or LDL-C (34% and 23% initiated on therapy, p = 0.02 for each comparison). Among patients already on therapy, 51% of patients with elevated HbA1c had their regimen increased from T1 to T2, compared to 30% of patients with increased therapy for either elevated SBP or LDL-C (p < 0.001). Among patients on insulin, there was a 0.05% decline in HbA1c for every additional 10 U of insulin/day prescribed (p = 0.02). Increased medical therapy had a large effect in LDL-C management, with a 27 mg/dL decline in LDL-C among patients started on statins vs. patients remaining untreated (p < 0.001). From T1 to T2, a decline in the proportion of patients above recommended goal occurred only for LDL-C (from 58% above goal in T1 to 45% above goal in T2, p = 0.002).
CONCLUSION: In this cohort of diabetic patients with frequent access to primary care, metabolic risk factors were not well controlled. From one year to the next, physicians were most likely to increase therapy for hyperglycemia. In contrast, less than a third of patients above goal for either SBP or LDL-C had their regimens increased the following year. Although hyperlipidemia was least aggressively managed, increases in pharmaceutical therapy had the greatest impact on LDL-C levels. Greater initiation and intensification of therapy, particularly for hyperlipidemia, present specific opportunities to improve metabolic control in type 2 diabetes.

**A RANDOMIZED TRIAL TO REDUCE ADHERENCE BARRIERS AND MEDICATION DISCREPANCIES IN TYPE 2 DIABETES.** R.W. Grant[1], N.G. Devita[2], D.E. Singer[1], J.B. Meigs[1]; [1]General Medicine Division, Massachusetts General Hospital, Boston, MA; [2]Partners Community HealthCare, Boston, MA *(Tracking ID #50790)*

BACKGROUND: Patients with type 2 diabetes often require complex medical regimens to control hyperglycemia, hypertension, and hyperlipidemia. We conducted a randomized trial of an intervention to reduce both medication adherence barriers and discrepancies between physician-prescribed and patient-reported medical regimens.
METHODS: We report interim results of a telephone-based intervention in patients with type 2 diabetes. Patients randomized to the intervention were administered a detailed questionnaire by a clinical pharmacist. After gathering all their medicines by the phone, patients were asked about specific adherence barriers and 7-day adherence rates for each medicine. In addition, the patient-reported regimen was compared to the medication list in the electronic medical record. Control patients were given a brief questionnaire asking about overall adherence rates. Based on the interviews, intervention patients received individually-tailored education and social services or nutrition referrals. A summary of each intervention patient's adherence barriers and medication discrepancies was entered into the medical record and electronically forwarded to the primary care provider.
RESULTS: The overall study cohort (n = 432) was drawn from an academic community health center serving a predominantly white, working class neighborhood. There were no significant differences between intervention and control groups in mean age (64 years), last measured hemoglobin A1c (7.6%), last total cholesterol level (181 mg/dL), or in proportion of women (50%). Of the first 120 patients randomized, 101 (85%) responded and were enrolled. In an interim analysis of these first 101 respondants, patients reported taking a mean of 5.7 medicines. Self-reported adherence with all doses was high (6.9 out of 7 days). Adherence barriers included: medication side effects (31%), difficulty filling prescriptions (20%), and uncertainty about physician instructions (13%). Discrepancies were found in 47 patients (47%). In 24 patients with detailed follow-up, 43 medication discrepancies identified included: different dose (53%), patient-reported medication not listed in record (33%), and medication listed in record not reported by patient (14%). Three months after the intervention, 63% of discrepancies were resolved by changes in the medical record, 23% were unresolved, and 9% were resolved by patient changes. There were no significant changes in adherence barriers comparing intervention and control patients at 3 months.
CONCLUSION: In this community cohort of diabetic patients, HbA1c and cholesterol were generally well controlled. Patients reported very high medication adherence rates and few adherence barriers. Interim results of a pharmacist intervention showed no significant effect on further reducing these barriers. We identified a high prevalence of medication discrepancies. In a subset analysis, most of these errors appeared to reflect inaccuracies in the record rather than patient errors.

**INCIDENCE OF REIMBURSEMENT DENIALS AND REVERSALS BY MANAGED CARE ORGANIZATIONS AT A UNIVERSITY HOSPITAL.** J.D. Greenberg[1], R. Sharma[1], H. Noveck[1], M. Bueno[2], J.L. Carson[1]; [1]University of Medicine & Dentistry of New Jersey, New Brunswick, NJ; [2]Robert Wood Johnson University Hospital, New Brunswick, NJ *(Tracking ID #51302)*

BACKGROUND: Reducing the rate and number of days of hospitalization is an important strategy for maintaining profitability for managed care companies. Two widely used strategies to reduce hospital utilization are outright denial of reimbursement for hospital days and downgrading of reimbursement. The goal of this study was to describe patterns of reimbursement denial and reimbursement downgrading by managed care organizations at a university hospital.
METHODS: We performed a retrospective cohort study consisting of consecutive patients admitted to Robert Wood Johnson University Hospital in 1999. We included patients in whom reimbursement for inpatient care was determined on a perdiem basis. We analyzed information from databases on patient billing and denial of reimbursement created by the hospital. We classified denials based on the primary reason given by the insurer. We grouped denials into denial of admission, delayed discharge, delay in service, and other. We defined a denied day as an inpatient hospital day for which reimbursement was fully denied by the insurer. We defined a downgraded day as an inpatient hospital day for which reimbursement was downgraded by the insurer from the level at which the care was provided. We defined a reversal day as previously denied or downgraded days which were reimbursed to a higher level of payment.
RESULTS: Of the 11,762 admissions, 14.1% had at least one day initially denied or downgraded. Of the 59,354 hospital days, 6,122 days (10.3%) were initially denied or downgraded; 3,603 days (58.9%) were fully denied. However, after appeals were submitted by the hospital to the insurers, 1,369 (38.0%) denied days were reversed. A total of 1,844 days were downgraded by the insurers; 80% reduced reimbursement to the level of a skilled nursing facility. 18.6% of downgraded days were reversed upon appeal. The reasons for denials or downgrades were 64.3% delayed discharge, 16.7% delay in service, 14.6% denial of admission and 4.4% other. The loss of income is estimated to be $3.3 million based on average reimbursement for each hospital day.
CONCLUSION: Denials and downgraded days are frequent and costly. While many denials can be reversed on appeal, arbitrary guidelines should be replaced by evidence based standards that protect patient safety, hospital resources, and insurers' finances.

**COLLABORATIVE CLINICAL CULTURE AND PRIMARY CARE OUTCOMES.** S. Greenfield[1], D.W. Roblin[2], S.H. Kaplan[1], D.G. Carlton[2], M.H. Roberts[2]; [1]Tufts University School of Medicine, Boston, MA; [2]Kaiser Permanente Georgia, Atlanta, GA *(Tracking ID #52302)*

BACKGROUND: Little is known about the impact on quality of patient care of a "collaborative clinical culture", characterized by role collaboration, appropriate task delegation, team affiliation and provider autonomy, within teams of physicians and associate practitioners. We studied the effects of an intervention designed to create a collaborative clinical culture on quality of chronic disease care in a large, multi-practice primary care setting. We hypothesized that process and outcomes of chronic disease care would be positively related to the level of collaborative clinical culture achieved.
METHODS: We studied 1,750 asthma and 4,645 diabetes patients of 16 adult medicine primary health care practices. Quality of care for these patients was measured using HEDIS performance measures. Collaborative clinical culture (CCC) was assessed by survey of 132 providers and 357 support staff at each practice (response rate 80% for both groups). Provider surveys measured multiple dimensions (scaled from 0 to 100) of collaborative clinical culture, including: role collaboration, task delegation, provider autonomy and team affiliation. Dimensions were combined into an aggregate CCC scale. Patient satisfaction was assessed by a post-visit survey; survey scales (0 to 100) measured quality of practitioner communication, time with provider, and overall quality of care. Effects of collaborative clinical culture on patient outcomes were estimated using hierarchical models (linear and logistic) to adjust for patient and practitioner characteristics (cluster effects) among practices.
RESULTS: The combined CCC scale and subscales were significantly (p < .05) positively associated with HbA1c testing and HbA1c level <9.5% for diabetes patients, and with use of inhaled anti-inflammatory agents (IAI) for asthma patients. After adjustment, 8.6% more (p < .01) diabetes patients of practices in the top CCC quartile had annual HbA1c testing and a value <9.5% (overall 67%) compared with diabetes patients of practices in the bottom CCC quartile; 8.2% more (p = .01) had annual lipid testing and an LDL result <130mg/dl (overall 42%) compared with the bottom CCC quartile. Similarly, 2.8% more (p = 0.05) asthma patients of practices in the top CCC quartile received IAI agents (overall 89%) compared with the bottom CCC quartile. Patient satisfaction results parallel clinical quality of care measures.
CONCLUSION: Better quality of patient care, measured both using clinical quality and patient satisfaction measures, was attained in practices in which providers and staff achieved a collaborative clinic culture. A feasible and potentially generalizable intervention that allows practices broad flexibility in resource management and motivates practices to create a collaborative culture, appears to improve quality of patient care for chronic disease.

**LINKS BETWEEN TERRORISM AND HEALTH PERCEPTIONS OF PATIENTS.** P. Haidet[1], K. O'Malley[1], B. Sharf[2], J. Aniol[1], A. Gladney[1], A. Greisinger[3], R. Street[2]; [1]Houston VAMC, Houston, TX; [2]Texas A&M University, College Station, TX; [3]Kelsey Research Foundation, Houston, TX *(Tracking ID #51207)*

BACKGROUND: Since the September 11, 2001 terrorist attacks, many polls have demonstrated shifts in the attitudes and behaviors of the general US population with respect to a variety of issues, such as security and patriotism. The aim of this study was to explore associations between the effects of the Sept. 11 terrorist attacks and patients' perceptions of health and illness.
METHODS: As part of an ongoing project designed to measure aspects of patients' illness experiences, we are asking patients to rate the impact that the aftermath of the Sept. 11 terrorist attacks is currently having on their life using 4 response categories from 'no impact' to 'extremely negative.' We are collecting information on respondentss background, quality of life, and perceptions of various aspects of their illness experience, including: a) severity of illness; b) meaning that illness has in respondents' lives; and c) amount of control respondents feel over their illness. We have recruited a convenience sample of 95 patients since November 1, 2001 from primary care clinics in the Houston area. In our preliminary analysis, we examined associations between the impact of terrorism and demographic and health-related variables described above using chi-square tests for categorical variables and linear regression for continuous variables.
RESULTS: Respondents reported a mean age of 50 years (SD 12 yrs), 32% were female, 64% were African American, 54% reported an income below $20,000 per annum, 21% reported that at least one generation of the family (either the patient, their parent, or their grandparent) had been born in a country outside of the United States. Twenty-one percent reported no impact in their life from the Sept. 11 attacks, 31% reported somewhat negative, 29% reported moderately negative, and 19% reported extremely negative impact. There were no statistically significant associations between respondents' ratings of the amount of impact of the Sept. 11

attacks and their gender, age, ethnicity, income, or level of acculturation. Respondents who reported lower quality of life (p = .03), higher feelings of control over their illness (p = .05), greater severity of illness (p < .01), and greater meaning of illness in their life (p < .001) all rated the impact from the Sept. 11 attacks on their lives to be moderately to extremely negative.
CONCLUSION: The September 11, 2001 terrorist attacks had at least a somewhat negative impact for a majority of patients, regardless of age, gender, ethnicity, acculturation, or socioeconomic status. Those patients who reported lower overall quality of life and patients who reported a greater significance of illness in terms of meaning, severity, and control reported greater impact from the Sept. 11 attacks. While terrorism has a uniform impact across demographic groups, its effects on patients are linked with certain aspects of the illness experience. Primary care physicians should explore the impact of terrorism and its implications for the health of their patients.

**A TOOL TO MEASURE PATIENTS' AND PHYSICIANS' EXPLANATORY MODELS OF ILLNESS.** P. Haidet[1], K. O'Malley[1], J. Aniol[1], A. Gladney[1], B. Sharf[2], R. Street[2], A. Tran[1], A. Greisinger[3]; [1]Houston VAMC, Houston, TX; [2]Texas A&M University, College Station, TX; [3]Kelsey Research Foundation, Houston, TX *(Tracking ID #52000)*

BACKGROUND: An explanatory model (EM) defines an individual's 'view' of the experience, causes, and solutions to sickness. Researchers have observed that doctors and patients sometimes have differing explanatory models, where doctors focus on *disease* while patients experience *illness*. Much research in this area, however, has been limited in scope due to the resources needed to interview individual patients and physicians and draw conclusions about the amount of agreement between their respective EMs. In order to address this limitation, we developed a short (10 minute) instrument that provides an overview of an individual's EM and allows comparisons between patients and their physicians. We present preliminary data on the development and validation of the Congruence in Explanatory Models Instrument (CEMI).
METHODS: We performed a comprehensive review of anthropological and medical literature regarding EMs and conducted 20 in-depth qualitative interviews with patients in Houston. Based on this work, we identified 6 domains that shape an individual's EM. These domains include views about the: 1) cause of; 2) severity of; 3) meaning of; 4) amount of control over; 5) treatment required for; and 6) roles of physician and patient in managing illness. We wrote items in each of these domains through 6 iterations of item writing, discussion, and revision. We administered our item pool to 15 patients and conducted a focused group interview to identify and revise problematic items. Our final item pool contained 116 items. We administered these to a convenience sample of 95 patients in Houston. We conducted an initial exploratory factor analysis to assess underlying dimensions of our instrument.
RESULTS: Patients reported a mean age of 50 years (SD 12 yrs), 32% were female, 64% were African American, 54% reported an income below $20,000 per annum, 21% reported that at least one generation of the family had been born in a country outside of the US. Exploratory factor analysis of the entire item pool revealed the presence of 8 independent factors aligning with the domains in which we had written items (the domains of *cause* and *treatment* each contained two factors). Confirmatory factor analyses using 25 items chosen for the final instrument revealed that each factor accounted for at least 69% of item variance. Cronbach's alphas ranged from 0.77 to 0.87 for all subscales.
CONCLUSION: The CEMI is a short instrument with initial evidence of good psychometric properties that provides useful information about salient aspects of explanatory models. Such information may be used to compare the EMs of patients to those of their doctors. Our future work will include further validation of the instrument and its use in a study of cross-cultural communication in the medical encounter.

**EFFECT OF ANEMIA AND TRANSFUSION ON FUNCTIONAL OUTCOMES IN HIP FRACTURE.** E.A. Halm[1], J.J. Wang[1], J.D. Penrod[1], K. Boockvar[1], S.B. Silberzweig[1], A.L. Siu[1]; [1]Mount Sinai School of Medicine, New York, NY *(Tracking ID #50802)*

BACKGROUND: Anemia is common among elderly patients (Pts) who are hospitalized. Anemia and blood transfusions (Txn) have been shown to influence short-term mortality for some conditions, but not others. The effect of anemia and Txn on non-mortal outcomes is uncertain. We sought to measure effect of anemia and Txn on risk-adjusted mortality, readmissions, and functional mobility in Pts undergoing hip fracture surgery.
METHODS: Data on pre-fracture mobility, severity of illness, and comorbidity were obtained by chart review and interview for 551 Pts undergoing hip fracture surgery as part of a 4 hospital prospective cohort study. All hemoglobin (Hgb) values and blood Txns were identified from lab results and blood bank computer systems and chart review. Deaths, readmissions, and functional mobility within 60 days of discharge (DC) were ascertained by telephone interview and querying the state hospital discharge database. Mobility was measured with the validated Functional Independence Measure-Locomotion scale (range 2 – 14; higher = better). Logistic and linear regression assessed associations between anemia and Txn and outcomes. All multivariate (MV) analyses used a validated risk adjustment model to control for factors known to influence hip fracture outcomes including: age, sex, RAND comorbidity score, APACHE score, pre-fracture mobility, nursing home residence, dementia, and DNR status.
RESULTS: The average Pt was 82 years old with 2.3 comorbid illnesses; 82% were female. The 60 day event rates were 3.8% for death and 16.9% for readmission. The mean 60 day mobility score was 6.6. In MV analyses, Hgb on admission (mean = 12.3) was not associated with mortality or mobility outcomes, but it did predict readmissions (p < .05). Similarly, the lowest post-op Hgb (mean = 9.5) was not related to death rates or mobility, but there was a borderline relationship with readmission (p = .06). Nor did we find an association between the last Hgb (mean = 10.8) and death, readmission, or functional mobility even after adjusting for the MV risk model and hospital, admit Hgb, inpatient Txn, and use of iron or EPO on DC. Overall, 55.5% of Pts received a blood Txn (95% were post-op; median 2 units). Pts who got a post-op Txn had lower post-op Hgb than those who did not (8.6 vs. 10.3; p < .001). The lowest Hgb prior to post-op Txn was <8.0 for 20%, 8.0 to 8.9 for 42%, 9.0 to 9.9 for 26.1%, and >10.0 for 12%. Post-op Txn did not influence the risk of death (adjusted OR = 1.5; 95% CI, 0.4 – 5.4), but was associated with lower risk of readmission (adjusted OR = 0.5; CI, 0.3 – 0.9). There was no association between Txn and functional mobility scores (p=.51). All final Txn analyses adjusted for the MV risk model, hospital, admit Hgb, lowest Hgb prior to Txn, and use of iron or EPO on DC.
CONCLUSION: Neither anemia nor Txn was associated with risk-adjusted mortality or functional mobility-2 common reasons for transfusing hip fracture Pts. Txn did appear to lower the risk of readmission.

**HAVE PUBLISHED RCTS IMPROVED THE APPROPRIATENESS AND USE OF CAROTID ENDARTERECTOMY?** E.A. Halm[1], S. Tuhrim[1], L.H. Hollier[1], T.S. Riles[2], G. Faust[3], J.A. Popp[4], E. Ascher[5], H. Dardik[6], M.R. Chassin[1]; [1]Mount Sinai School of Medicine, New York, NY; [2]NYU School of Medicine, New York, NY; [3]LIJ Hospital, Manhasset, NY; [4]Albany Medical Center, Albany, NY; [5]Maimonides Medical Center, Brooklyn, NY; [6]Englewood Hospital, Englewood, NJ *(Tracking ID #51085)*

BACKGROUND: In the 1980s, carotid endarterectomy (CEA) was controversial. No rigorous data documented its efficacy, many studies documented high complication rates, and the RAND appropriateness study reported that 32% of CEAs were performed for inappropriate indications. At the time, 75% of CEAs were done for patients (Pts) with symptomatic carotid stenosis (TIA/stroke). During the 1990s, several large RCTs defined who benefits from surgery, and rates of CEA have doubled. This study assesses how the appropriateness and use of CEA has changed since publication of these studies.
METHODS: We performed a retrospective cohort study of all consecutive CEAs (ICD-9 38.12) performed by 81 surgeons in 1997 – 1998 in 5 hospitals in NY and 1 in NJ. Using the RAND appropriateness method, an expert panel produced detailed appropriateness ratings for 1557 mutually exclusive indications for CEA. Each indication specifies the type and recency of neurologic symptoms (Sx), degree of carotid stenosis, perioperative risk, and complication rate of the surgical team. Each indication received a final rating as appropriate, uncertain, or inappropriate. Detailed clinical data about each case and all deaths and non-fatal strokes within 30 days of surgery were ascertained by review of the inpatient chart, outpatient surgeon record, and hospitals' administrative databases. All adverse events were confirmed by 2 physician investigators (including 1 neurologist).
RESULTS: We abstracted 2365 of 2390 identified cases (99%). Of these, 2066 underwent CEA alone and 150 had combined CEA with CABG (149 excluded as other combined procedures). Mean age was 72 yrs, 58% were female, 87% White, and 76% Medicare beneficiaries. The clinical indications for CEA were: asymptomatic (Asx) stenosis 71%, carotid TIA 18%, stroke 10%, and vertebrobasilar TIA 1%. Overall, 85% were rated as appropriate, 10% inappropriate, and 5% uncertain. There were significant hospital differences in rates of CEAs done on Asx Pts (67% to 83%; p < .05) and appropriateness (80% to 91%; p < .05). Among cases rated inappropriate, the primary reasons were: high comorbidity in Asx Pts (52%), minimal stenosis (29%), disabling stroke (7%), CEA contralateral to a symptomatic stenosis (6%), occluded artery (2%), and several factors (4%). The combined 30-day death/stroke rate was 5.1% for Sx Pts, 2.6% for Asx Pts, and 10.6% for Pts with combined CEA and CABG. There were no significant hospital differences in complication rates.
CONCLUSION: Since the publication of several RCTs, the rate of inappropriate CEA has fallen dramatically. There has also been a major shift towards CEA for Asx Pts who have much less to gain from surgery compared to Sx Pts. Complication rates among these 6 hospitals were comparable to the benchmark results of the highly selected RCT sites.

**UNDERSTANDING THE COSTS AND BENEFITS OF ELECTRONIC MEDICAL RECORDS IN LARGE PHYSICIAN PRACTICES.** I. Sim[1], R.H. Miller[1]; [1]University of California, San Francisco, San Francisco, CA *(Tracking ID #46103)*

BACKGROUND: Recent attention to medical errors and the "quality chasm" has increased the call for using electronic medical records (EMRs) to improve quality, but organizations are uncertain about EMR costs and benefits. We developed a conceptual model of: a) EMR functionality, costs, and benefits; b) how organizational factors affect EMR-related costs and benefits; and c) how EMRs affect organizational functioning.
METHODS: We studied 8 large medical groups (>70 physicians), conducting over 80 interviews of physicians, project managers, computing staff, EMR vendors, and health-care policy makers. We coded and analyzed interviews using Nvivo, and reviewed the technology diffusion, medical informatics, and organizational change literature.
RESULTS: Seven of the 8 organizations used one of two leading EMR products that included electronic notes, results viewing, prescription ordering, and messaging. Six practices were multi-specialty, 4 were heavily capitated, and 6 were hospital or health plan affiliated. Physician EMR use ranged from 15 – 100% in the 8 practices; strategies to increase physician EMR use included financial incentives and temporary reductions in patient load. Two organizations provided detailed cost data; 6 provided only rough cost estimates. Initial EMR-related costs per physician ranged from $20 – 27,000, with roughly $7 – 9,000 in ongoing costs annually. Quality of care and patient satisfaction benefits were difficult to assess and quantify, but tangible benefits (e.g., reductions in medical records and dictation costs) ranged from $0 to $14,000 per physician annually. Only a few organizations had used their EMRs for specific new quality improvement programs. Factors influencing variations in EMR benefits included the extent of EMR integration with other information systems, the extent of physician EMR use, organizational characteristics (e.g., management expertise), and the nature and extent of complementary innovations (e.g., workflow redesign, new quality improvement programs). Complementary innovations appeared to be crucial for generating EMR-related benefits.
CONCLUSION: Existing commercial EMRs are ready for "prime time" and various workflow and financial strategies can be used to increase physician EMR use. In most cases, however, EMRs are not "sure-fire" investments with rapid payoff. Organizations must be ready to invest in many organizationally challenging complementary innovations if they hope to produce significant EMR-related financial and quality benefits.

**APPLYING DIABETES-RELATED PREVENTION QUALITY INDICATORS.** D. Helmer[1], M. Rajan[1], M. Brimacombe[2], N. Stiptzarov[3], L. Pogach[1]; [1]DVA-NJHCS, East Orange, NJ; [2]UMDNJ, Newark, NJ; [3]Rutgers, New Brunswick, NJ *(Tracking ID #51862)*

BACKGROUND: The Agency for Healthcare Research and Quality's "Prevention Quality Indicators(PQI's): Hospital Admission for Ambulatory Care Sensitive Conditions" includes 2 related indicators: hospitalizations for uncontrolled and short-term complications of diabetes. The measures require only information found universally in hospital discharge abstracts and are for population-based analyses of quality of care. The Veterans Health Administration (VHA) provides an excellent opportunity to examine these new indicators empirically. We identified VHA users from fiscal years 1997 – 98 (FY97/98) with linked records for in- and outpatient diagnoses and utilization from both the VHA and Center for Medicare and Medicaid Services (CMMS). Since PQI risk adjustment is limited to age and sex, we evaluated the contribution of additional patient level demographic and clinical data to the discriminatory ability of the measures.
METHODS: We selected all veterans who utilized VHA services in FY97/98 who met the HEDIS definition for diabetes and who were alive as of 9/30/98 (N = 319,439 from 134 stations). We categorized FY99 VHA hospitalizations according to principal or discharge diagnoses as uncontrolled diabetes (ICD-9-CM codes 25002 and 25003), short-term complications (codes 25010 – 25013, 25020 – 25023, 25030 – 25033), or combined (either group). We calculated the Charlson Comorbidity Index scores from in- and outpatient records from FY97 and 98 using both VHA and CMMS data. Logistic regression models were built adding marital status and Charlson score sequentially to age and gender. C-statistics were calculated for each model and PQI separately and combined.
RESULTS: The individuals were older, married men (98.1% male, median age 65 years, 62.3% married). In FY99, there were 802 VHA discharges (2.51/1,000 cohort members) with uncontrolled diabetes and 791 (2.48/1,000 members) with diabetes short-term complications. The cohort's total number of VHA hospitalizations in FY99 was 122,674. The combined PQI conditions accounted for 1.30% of hospitalizations.
CONCLUSION: Compared to adjustment for age and gender alone, the addition of marital status and the Charlson index moderately improved the discriminatory ability as measured by the C statistic. The improvement was greatest for uncontrolled diabetes and least important for short-term complications.

**C Statistics for PQIs with Case-mix Adjustment**

| | Age + Sex | Age + Sex + Marital | Age + Sex + Marital + Charlson |
|---|---|---|---|
| Uncontrolled | .575 | .633 | .652 |
| Short-term | .720 | .737 | .752 |
| Combined | .658 | .683 | .710 |

**THE PREVALENCE AND IMPACT OF TRAUMATIC EVENTS AMONG PRIMARY CARE PATIENTS WITH PANIC AND GENERALIZED ANXIETY DISORDERS.** B. Herbeck Belnap[1], B.L. Rollman[1], W.P. Gardner[1], B. Hanusa[1], K. Shear[1]; [1]University of Pittsburgh, Pittsburgh, PA *(Tracking ID #52187)*

BACKGROUND: Patients receiving specialist treatment for an anxiety disorder often report having experienced a traumatic event (TE). However, little is known about the prevalence and type of TEs among primary care patients with panic and generalized anxiety disorders PD/GAD).
METHODS: We screened patients for PD/GAD at four Pittsburgh-area primary care clinics with the PRIME-MD as part of an ongoing clinical trial to improve the quality of treatment for these conditions. Protocol-eligible patients were diagnosed with PD and/or GAD on the PRIME-MD, experienced at least a moderate level of anxiety symptomatology (Hamilton Rating Scale for Anxiety ≥14 or Panic Disorder Severity Scale ≥7), were not currently under the care of a MHS, and met all other protocol-eligibility criteria. We administered over the telephone a modified version of the 11-item Traumatic Event Scale (TES), and the 5-item Subjective Symptoms Scale (SSS) to assess perceived impairment in work, leisure, and relationships.
RESULTS: Between 7/00 and 9/01, 116 protocol-eligible patients with PD and/or GAD completed the TES (40% GAD, 15% PD, and 45% PD/GAD). Their mean age was 43.8 (range19 – 63), 79% were female, 97% Caucasian, 65% were married, and 51% were employed full-time. Of these patients, 89% self-reported 1 or more TEs and 31% reported 4 or more TEs (mean = 2.8). Most commonly reported were: 1) "Have you ever witnessed a person being killed, seriously injured, sexually or physically assaulted?" (38%); 2) "Has an immediate family member, romantic partner, or very close friend died as a result of an accident, homicide, or suicide?" (36%); and 3) "Has anyone ever tried to physically force you to have intercourse, or oral or anal sex against your wishes or when you were in some way helpless?" (28%). There were no differences in the mean number of TEs by either type of anxiety disorder or by demographic characteristics. Those who were unmarried (3.5 vs. 2.4; p = 0.004), had comorbid dysthymia (3.3 vs. 2.5; p = 0.04), or social phobia (3.9 vs. 2.4; p = 0.03) reported more TEs than those who were married or did not have these comorbid conditions, respectively. Greater numbers of TEs were also associated with greater perceived impairment on the SSS (p = 0.0002).
CONCLUSION: Primary care patients with PD/GAD frequently report a history of TEs. Increased numbers of TEs are associated with additional impairments. Further research is required to investigate the impact of TEs on the recovery patterns and service utilization among primary care patients with PD/GAD.

**PHYSICIAN'S UNDERSTANDING AND MISUNDERSTANDING OF DIABETES CARE PRIORITIES.** T.P. Hofer[1], J.K. Zemencuk[1], R.A. Hayward[1]; [1]VA Center for Practice Management and Outcomes Research and University of Michigan, Ann Arbor, MI *(Tracking ID #51433)*

BACKGROUND: Diabetes is a highly treatable disease with established clinical guidelines, however, the importance of different recommended treatments varies dramatically. To evaluate physicians' understanding and prioritization of diabetes care, we examined physician's' ratings of the relative importance of different aspects of diabetes treatment guidelines.
METHODS: A survey was mailed to all primary care physicians (PCP's) from two VA hosptial networks (n = 303), one of which had participated in a broad, evidence based guideline developement effort 8 – 12 months earlier, and all endocrinologists nationwide in the VA (n = 222) (Response rate = 63% [n = 315]). Physicians were asked to rate the importance of 13 aspects of diabetes care for an uncomplicated patient (either age 47 or 67) in two ways, 1) the overall importance on a 5-point scale, and 2) the preferred intervention in a pair, a technique known as the method of paired comparisons.
RESULTS: Both PCP's and endocrinologists correctly identified several high-impact treatment priorities (A1c = 9.5%, DBP = 95mmHg, LDL = 145mg/dl). However, recent evidence suggests that treating when DBP=88mmHg is also highly beneficial and that treating low HDL syndrome may be highly beneficial, but both treatments were rated of low importance. Almost one-third of PCP's rated treating a DBP = 88 as not at all/mildly important and this treatment priority was rated lower than medical treatment for Tg = 400mg/dl and urine protein screening, interventions without strong supportive evidence. Further, almost 80% of PCP's rated tight glycemic control as more important than tight DBP control, in direct contrast to clinical trial evidence. Two factors appeared to produce ratings not consistent with the epidemiological evidence, whether or not the guideline intervention was an established performance measure and how recently the guideline was established. Endocrinologists ratings followed the same general pattern, but were more consistent with the epidemiological evidence. The PCPs in the hospital network that had participated in the guideline development intervention rated blood pressure control significantly higher.
CONCLUSION: Although several high-priority aspects of diabetes care were clearly identified, there were also notable examples of ratings that were clearly inconsistent with the epidemiological literature. It appeared that recommendations based upon more recent evidence were substantially under-rated and that some guidelines used as performance measures were relatively over-rated. These results support the arguments that: 1) a more proactive approach is needed to facilitate rapid dissemination of new high-priority findings, and 2) intervention priority should be considered more strongly when selecting performance measures.

**THE IMPACT OF PRIMARY CARE CLINICIAN STAFFING MIX ON QUALITY.** P.Y. Huang[1], E.M. Yano[1], M.L. Lee[1], L.V. Rubenstein[1]; [1]VA Greater Los Angeles HSR&D Center of Excellence, Sepulveda, CA *(Tracking ID #50874)*

BACKGROUND: Managed care organizations, including the VA, increasingly employ nurse practitioners (NPs) and physician assistants (PAs) in addition to physicians (MDs) as primary care (PC) providers. Research shows that non-physician clinicians (NP/PAs) provide high quality PC, but these studies evaluated NP/PA care for specific patients under specific practice conditions, rather than the impact of staffing structure. We examined the effect of the NP/PA-to-MD staffing ratio on the quality of primary care.
METHODS: We surveyed the PC practice leaders of all 170 VA medical centers (VAMC) in 1999 (94% response rate). We used survey and VA computer administrative data to measure facility characteristics (e.g., facility complexity, academic affiliation) and PC practice characteristics (e.g., firm system practice arrangement, use of managed care arrangements such as guidelines and provider education). Survey data for each VAMC was linked to 1999 PC practice outcomes as measured by performance measures for patient satisfaction, preventive care, and chronic disease management. The VA calculates performance measures yearly based on randomly selected patients visiting PC through: (1) the VHA National Ambulatory Care Survey, a national VA patient satisfaction survey, and (2) the Prevention Index (PI) and Chronic Disease Index (CDI), from the chart-based VHA External Peer Review Program. The NP/PA-to-MD ratio for each facility was calculated by dividing the number of PC NP/PAs by the number of PC MDs. We transformed the NP/PA-to-MD ratio and dependent variables (practice outcomes), and performed multivariate regression to predict the influence of the NP/PA-to-MD ratio on practice outcomes, adjusting for facility and PC practice characteristics.
RESULTS: Overall, 148/154 (96%) of VAMC PC practices reported using NP/PAs as PC providers; mean NP/PA-to-MD ratio 0.75. Academic VAMCs, practices with PC training programs, or with more provider education had higher NP/PA-to-MD ratios. In bivariate regressions, a higher NP/PA-to-MD ratio was associated with worse PI and CDI scores, but better patients' ratings of emotional support (p < 0.05). After controlling for facility and practice characteristics, a higher NP/PA-to-MD ratio remained independently associated with lower PI and CDI scores and greater patient satisfaction with emotional support (p < 0.05).
CONCLUSION: Contrary to expectations, VA PC practices with higher NP/PA-to-MD staffing ratios performed worse than those with lower ratios on measures of preventive and chronic disease care. Future research should investigate whether the lower PI/CDI scores reflect problems with NP/PA roles within these PC practices (e.g., inadequate visit duration, excessive patient complexity) or whether they reflect structural deficiencies affecting the quality of both MD and NP/PA clinical work. Continued addition of NP/PAs to these practices without new approaches to practice design will unlikely yield higher PI/CDI socres. More information on clinician staffing models is needed.

**INSTITUTION OF A GROUP CLINIC TO REDUCE VISITS BY HIGH USERS OF URGENT CARE CLINIC.** S. Jain[1], K. Xavier[2], U. Lee[2]; [1]University of California, San Francisco, CA; [2]VA Medical Center, San Francisco, CA *(Tracking ID #50775)*

BACKGROUND: Medical centers commonly establish urgent care clinics to provide acute care for patients whose providers are not available for urgent medical needs. However, those clinics are often overutilized by small numbers of patients who may not have acute medical problems. We designed and implemented a Group Clinic to provide additional support for these patients to reduce their usage of the urgent care clinic.
METHODS: The Group Clinic was developed to provide additional support for frequent users of urgent care clinic. A group intervention format was selected to provide an opportunity for health education, encourage patients to learn from one another, and minimize the staff time

commitment required for this effort. The Group Clinic met monthly for ninety minutes for nine months each year, and a curriculum in health education was developed. Each session began with a brief introduction by a facilitator. Subsequently, a speaker from the medical center staff led a fifty minute discussion about a health topic; topics included orientation to the clinic, ways to obtain medication refills, home safety, nutrition, exercise programs, foot care, depression, and dental care. At the end of each session, all three facilitators (a physician, a nurse, and a social worker) were available for about twenty minutes to meet individually with participants. Frequent users of our urgent care clinic were identified by computer review as having had two or more visits to the urgent care clinic in the previous six months. Only participants who attended three or more sessions over the nine month period were included in the analysis, and record review was conducted for the last two years. Participants were asked to complete a written satisfaction survey on the final day of the Group Clinic.
RESULTS: About sixty patients were invited to participate each summer, and about fifteen chose to attend the initial meeting each September. During each of the past two years, about ten patients attended three or more clinics. The mean number of sessions attended by these twenty patients was 7.05. The mean number of urgent care visits in the nine months prior to the intervention was 5.95, which dropped to 1.85 visits in the nine months that the intervention was instituted ($p < 0.0001$). In addition, participants "agreed" or "strongly agreed" with the statements "I know how to contact the clinic staff if I have a question or problem," "I know what to do if I need to refill my medications," and "I would recommend participation in the Group Clinic to a friend."
CONCLUSION: Patients who participated in the Group Clinic had significantly fewer visits to the urgent care clinic during the intervention than they did before it. In addition, they learned about health promotion and disease prevention and developed a sense of community among one another. Patients who completed an evaluation form reported a high level of satisfaction with their participation. Although it may require a significant time investment, the establishment of the Group Clinic has ultimately reduce the usage of the urgent care clinic, thereby improving overall clinic efficiency.

**RELATIONSHIPS BETWEEN PATIENT SATISFACTION AND PHYSICAL AND MENTAL DOMAINS OF HEALTH STATUS.** C.K. Jaipaul[1], G.E. Rosenthal[1]; [1]Iowa City VAMC & University of Iowa, Iowa City, IA *(Tracking ID #51505)*

BACKGROUND: While the positive association between health status and patient satisfaction has been repeatedly demonstrated, most studies have used single-item indicators of health status (i.e., poor to excellent) when examining this relationship. Moreover, the amount of variance in satisfaction explained by a single-item indicator is small. The goal of the current study was to examine quantitative relationships between patient satisfaction and individual physical and mental domains of health status.
METHODS: The study sample included 16,390 patients (mean age 62 years; 43% male; 86% white) in 31 hospitals in Northeast Ohio during 4/94–3/95 who completed a mailed survey 8 to 12 weeks after discharge. Satisfaction was measured by the Patient Judgment System, a validated 41 item survey. For this study, we selected 3 multi-item scales assessing physician care, nursing care, and coordination of care. Individual health status domains were measured using 6 subscales of the SF-36 (general health perceptions [GH], physical functioning [PF], bodily pain [BP], mental health [MH], social functioning [SF], and vitality [VY]). Analyses examined the variance (R square) in satisfaction explained by the 6 SF-36 subscales, as well as by a single-item indicator of health status.
RESULTS: For all measures of satisfaction, better health on the SF-36 subscales and on the single-item indicator was associated ($p < .001$) with greater satisfaction. For example, mean nursing satisfaction scores ranged from 66 in those with poor health to 81 in those with excellent health. The variance in the 3 satisfaction scales explained by the 6 SF-36 subscales is shown below. While the amount of explained variance was low for all SF-36 subscales, levels were slightly higher for the 3 domains of mental function (MH, SF, VY) than for the 3 domains of physical function. In a multiple regression model including all 6 subscales, the explained variance rose marginally (3.6%, 3.7%, and 3.6% respectively, for physician care, nursing care, and coordination of care). In contrast, the single-item indicator of health explained 2.8 to 3.0% of the variance in the 3 satisfaction measures.

| | GH | PF | BP | MH | SF | VY |
|---|---|---|---|---|---|---|
| Physician Care | 1.9% | 0.9% | 1.0% | 2.8% | 2.1% | 2.1% |
| Nursing Care | 1.9% | 1.4% | 1.6% | 2.5% | 2.5% | 2.4% |
| Coordination of Care | 2.1% | 1.5% | 1.6% | 2.6% | 2.6% | 2.3% |

CONCLUSION: Patient satisfaction was higher in patients with better self-reported health. This finding was consistent across individual domains of mental and physical health. Nonetheless, the amount of variance in satisfaction explained by these domains was relatively small, and a single-item indicator of health status explained nearly as much variance as the 6 domains in aggregate. These findings suggest that single-item indicators may be adequate in adjusting patient satisfaction scores for differences in health status.

**PREDICTORS OF WARFARIN USE AMONG OHIO MEDICAID PATIENTS.** J.A. Johnston[1], R.J. Cluxton[2], P.C. Heaton[2], J.J. Guo[2], C.J. Moomaw[3], M.H. Eckman[1]; [1]University of Cincinnati Medical Center, Division of General Internal Medicine, Cincinnati, OH; [2]University of Cincinnati College of Pharmacy, Cincinnati, OH; [3]Institute for Health Policy and Health Services Research, University of Cincinnati, Cincinnati, OH *(Tracking ID #50400)*

BACKGROUND: Despite demonstrated efficacy in stroke prevention, warfarin is underutilized in patients with atrial fibrillation (AF). Reasons for warfarin nonuse are unclear.
METHODS: We performed a retrospective cohort analysis using Ohio Medicaid administrative billing data to ascertain determinants of warfarin use in patients with new-onset nonvalvular AF. We included claims from all institutions, providers, and pharmacies providing services to Ohio Medicaid enrollees. The cohort included all 11,699 continuously enrolled fee-for-service recipients of Ohio Medicaid with a new diagnosis of nonvalvular AF between 1998 and 2000. We determined incipient warfarin use and presence of risk factors for stroke and hemorrhage by searching claims records for corresponding ICD-9-CM and National Drug Codes. Univariate and multivariable analyses were performed to examine the association of risk factors with warfarin use.
RESULTS: Only 9.7% of all patients and 11.9% of those without apparent contraindications filled prescriptions for warfarin in the period from 7 days preceding to 30 days after the development of AF. Hypertension and congestive heart failure independently predicted increased warfarin use. Older age ($\geq$ 85), younger age (< 55), prior intracranial hemorrhage, prior gastrointestinal hemorrhage, predisposition to falls, alcohol/drug abuse, renal impairment, and conditions perceived as barriers to compliance predicted decreased warfarin use.
CONCLUSION: Few in this cohort of Ohio Medicaid patients with incident AF filled prescriptions for warfarin within 30 days of diagnosis. A number of factors, including alcohol or drug abuse/dependence, psychiatric disease, homelessness or inadequate housing, and lack of a caregiver, were both highly prevalent and appeared to bias against warfarin prescription.

**Multivariable Predictors of Warfarin Use**

| | OR (95% CI) | | OR (95% CI) |
|---|---|---|---|
| Age <55 | 0.73 (0.60–0.90) | Prior GI hemorrhage | 0.69 (0.55–0.88) |
| Age ≥85 | 0.41 (0.34–0.49) | Fall risk | 0.61 (0.52–0.73) |
| Hypertension | 1.40 (1.23–1.59) | Alcohol/drug abuse | 0.59 (0.35–0.99) |
| CHF | 1.37 (1.20–1.57) | Poor compliance | 0.84 (0.73–0.97) |
| Prior ICH | 0.52 (0.31–0.86) | Renal insufficiency | 0.66 (0.52–0.84) |

**DISCRIMINATION OF ALTERNATIVE METHODS FOR ASSESSING COMORBIDITY USING ADMINISTRATIVE DATA.** P.J. Kaboli[1], M.J. Barnett[2], G.E. Rosenthal[1]; [1]Iowa City VAMC and University of Iowa, Iowa City, IO, [2]Iowa City VAMC, Iowa City, IA *(Tracking ID #52386)*

BACKGROUND: The use of administrative databases to assess the effectiveness of health care delivery is dependent on the availability of valid methods of assessing comorbidity. However, relatively few methods exist. The goal of the current study was to compare the discrimination of a recently developed comorbidity measure for administrative data (Elixhauser) and a widely used measure (Charlson) in private sector and VA inpatient databases.
METHODS: The sample included consecutive discharges from VA (n = 228,356) and private sector (n = 10,903,990) hospitals over a 4-year period (1996–1999) with 4 high-volume diagnoses: congestive heart failure (CHF); chronic obstructive pulmonary disease (COPD); pneumonia; and gastrointestinal hemorrhage (GIH). VA administrative data were obtained from the Patient Treatment File. Private sector data were obtained from the National Hospital Discharge Survey, a nationally representative database of patients in non-federal hospitals. For each patient, comorbidity scores for the two methods were determined based on ICD-9 codes available in the administrative databases. The Elixhauser method assesses 30 comorbidities that are unlikely to be hospital complications or related to the admission diagnosis. The Charlson method assesses 11 comorbidities. Discrimination of the two methods for in-hospital mortality was compared using receiver operating characteristic (ROC) curve analysis.
RESULTS: VA patients were younger than private sector patients (mean ages, 68 vs. 71 years; $P < .001$), more likely to be male (98% vs. 44%; $P < .001$), and had higher mortality (4.9% vs. 3.9%; $P < .001$). For the 4 conditions, ROC curve areas in VA patients were higher ($P < .001$) for the Elixhauser method than the Charlson method: CHF (0.68 vs. 0.59); COPD (0.67 vs. 0.56); pneumonia (0.69 vs. 0.64); GIH (0.73 vs. 0.64). ROC curve areas were also higher for the Elixhauser method in private sector patients: CHF (0.67 vs. 0.61); COPD (0.69 vs. 0.56); pneumonia (0.67 vs. 0.62); GIB (0.76 vs. 0.65). However, ROC curve areas for the Elixhauser method were similar in VA and private sector patients: CHF (0.68 vs. 0.67); COPD (0.67 vs. 0.69); pneumonia (0.69 vs. 0.67); GIH (0.73 vs. 0.76).
CONCLUSION: A recently proposed measure of comorbidity for use in administrative data-Elixhauser—had higher discrimination than the previously developed and widely used Charlson method. The Elixhauser method had similar discrimination in VA and private sector databases. The higher discrimination of the Elixhauser method is likely due to its consideration of a greater number of comorbidities. Use of the Elixhauser method may improve the attributional validity of outcomes studies based on administrative data and may allow for wider use of administrative data in assessing the quality and efficiency of hospital care.

**ORGANIZATIONAL CHARACTERISTICS PREDICT PROCESSES OF CARE.** K.L. Kahn[1], H.H. Liu[1], J. Adams[2], W.P. Chen[1], D. Tisnado[1], D. Carlisle[1], M. Spar[1], C.M. Mangione[1], C. Damberg[3]; [1]UCLA Department of Medicine, Los Angeles, CA; [2]RAND, Santa Monica, CA; [3]PBGH, San Francisco, CA *(Tracking ID #51525)*

BACKGROUND: Medical care, particularly on the West Coast, has evolved to vary according to the intensity of structural support for the patient-provider dyad. We hypothesized that both the intensity of clinical structure and also medical organization type (MOT) defined as medical group (MG) or independent practice organization (IPA) would significantly predict processes of care after adjustment for baseline health status.
METHODS: We merged patient self-report data from 1998 for respondents (n = 24,891) with surveys of medical directors of 53 medical organizations (29 MG and 24 IPAs) from 3 west coast states to evaluate patient self-report process of care and patient and organizational predictors of those rates. We used ordinary least squares regression adjusted for intra-organization clustering of patients within medical organizations to estimate process using two explicit and two implicit measures of process as a function of: patient demographic and comorbid characteristics; care within a MG or IPA; care within an organization categorized according to the intensity of structural support for patient care, the degree to which decision

making was centralized, and/or the degree of homogeneity of implementation of structure across offices within organization, as reported by clinical directors. Explicit measures were assesed as rates of adherence for 16 Cognitive Process measures assessed as patient report of whether or not clinical topics pertinent to the patient were addressed by the provider (e.g., smoking, evaluation of symptoms, discussion of medication side effects) and as 6 Non-Cognitive Process measures assessed as whether or not indicated screening (e.g., for colorectal cancer) or diagnostic (e.g., diabetic foot exam) procedures were implemented. Implicit measures were patient reports of satisfaction with mental health care and overall provider care.
RESULTS: Structure influenced process differently for patients associated with MGs and IPAs. After adjustment for patient characteristics, within IPAs more intense structure is associated with better Cognitive ($p < .01$), Non-cognitive ($p < .001$), and Provider Rating scores ($p < .05$). Within MGs more intense structure is associated with lower Cognitive Process ($p = .09$), Mental Health Care rating ($p \leq .05$), and Provider Rating scores ($p < .05$). For example, across 4 quartiles of increasing structure, adjusted means for Cognitive Process scores varied in MGs (.38, .37, .37, .36,) and in IPAs (.37, .38, .38, .39).
CONCLUSION: Structure is a significant predictor of four dimensions of measured ambulatory process, though structure influences process differently for patients in MGs vs IPAs. Within IPAs more intense, centralized, and or homogeneous structure is associated with better process scores, while within MGs more structure is associated with lower process scores.

**EFFECT OF A TRIAGE-BASED EMAIL SYSTEM ON CLINIC RESOURCE USE IN PRIMARY CARE.** S.J. Katz[1], D.T. Stern[1], K. Dobias[1], C.A. Moyer[1], D. Cox[1]; [1]University of Michigan, Ann Arbor, MI *(Tracking ID #51427)*

BACKGROUND: Although electronic communication in general has grown dramatically, structured email and web-based communication between patients and their providers has diffused very slowly in clinical practice. Provider and payer groups are greatly concerned about the cost implications of employing these new technologies in clinical practice. To address these concerns, we performed a randomized controlled trial of a triage-based email system in primary care: Does a triage-based email system substitute for phone calls or reduce clinic no-shows?
METHODS: The setting was two large academic primary care centers employing 24 clinical faculty and 74 residents. Patients of "study" physicians (N = 50) were encouraged to communicate with providers and staff via a triage-based email system managed by nurses. Physicians were cc'd on all messages. Patients of "control" physicians (N = 48) were not given access to the system. We collected data on email, phone and visit volume by physician over 5 time periods during a 9 month period.
RESULTS: The table shows email and phone volume (number of messages per week per 100 scheduled visits) and visit no shows (per 100 scheduled visits) over 5 time periods during the study. Email volume was significantly greater in the study vs control group ($p < .01$) but phone and no show rates did not differ between groups.
CONCLUSION: A triage-based email communication system between patients and their providers significantly increased email messaging but did not offset phone volume nor reduce visit no show rates. Initial diffusion of email based communication appears to increase communication workload rather than substitute for more traditional modes of communication such as phone calls and visits.

**Email, Phone and Visit No Show Rates by Group**

| | | Study | | | Control | |
|---|---|---|---|---|---|---|
| Time Period | Email | Phone | No shows | Email | Phone | No shows |
| 1 | 8 | 68 | 6 | 6 | 78 | 6 |
| 2 | 21 | 61 | 8 | 6 | 55 | 8 |
| 3 | 46 | 67 | 5 | 9 | 55 | 5 |
| 4 | 27 | 65 | 6 | 7 | 57 | 7 |
| 5 | 27 | 90 | 7 | 10 | 79 | 7 |

**PHYSICIAN PERSPECTIVES ABOUT THE EFFECT OF A TRIAGE-BASED EMAIL SYSTEM ON PATIENT PROVIDER COMMUNICATION.** S.J. Katz[1], D.T. Stern[1], C.A. Moyer[2], K. Dobias[1], D. Cox[1]; [1]University of Michigan, Ann Arbor, MI; [2]University of Michigan Medical Center, Ann Arbor, MI *(Tracking ID #51452)*

BACKGROUND: Though electronic communication in general has grown dramatically, structured email and web-based communication between patients and their providers has diffused very slowly in clinical practice. To address provider and payer concerns about the use of these technologies, we performed a randomized controlled trial of a triage-based email system in primary care. Did this system affect physician attitudes towards electronic communication or clinic communication in general?
METHODS: The setting was two large academic primary care centers employing 24 clinical faculty and 74 residents. Patients of "study" physicians (N = 50) were encouraged to communicate with physicians and staff via a triage-based email system managed by staff. Patients of "control" physicians (N = 48) were not given access to the system. We assessed physician attitudes about electronic communication and communication in general with patients and staff after a 9 month study period (response rate 91%).
RESULTS: The table shows attitudes scale scores (the percentage of respondents who fell in each score group) by study group. Scores on the affinity scale (measuring attitudes towards the benefits of email with higher scores indicating greater affinity, 8 items, alpha 0.89) were higher in the study vs contol group physicians ($p < .01$). The scores on the "bother" scale (attitudes towards how bothered physicians are with patient email with higher scores indicating less bother, 8 items, alpha .95) were higher for study vs control groups (p .01). However scores on the "gencom" scale (attitudes towards general communication with patients and staff, 8 items, alpha .82) were the same between groups.
CONCLUSION: A triage-based email system improved physician attitudes towards the benefits and use of email in the clinical setting but did not change attitudes towards general communication with patients and staff.

**Email Affinity, Bother and General Communication Scores by Group**

| | | Study | % | | Control | % |
|---|---|---|---|---|---|---|
| Score | Affinity | Bother | GenCom | Affinity | Bother | GenCom |
| 1 | 5 | 8 | 13 | 16 | 24 | 11 |
| 2 | 9 | 27 | 22 | 18 | 27 | 25 |
| 3 | 17 | 27 | 28 | 24 | 31 | 25 |
| 4 | 42 | 38 | 23 | 24 | 18 | 25 |
| 5 | 27 | N/A | 14 | 18 | N/A | 14 |
| Total | 100 | 100 | 100 | 100 | 100 | 100 |

**PATIENT PERSPECTIVES ABOUT THE EFFECT OF A TRIAGE-BASED EMAIL SYSTEM ON PATIENT PROVIDER COMMUNICATION.** S.J. Katz[1], D.T. Stern[1], C. Moyer[2], K. Dobias[1], D. Cox[1]; [1]University of Michigan, Ann Arbor, MI; [2]University of Michigan Medical Center, Ann Arbor, MI *(Tracking ID #51488)*

BACKGROUND: Though electronic communication in general has exploded, structured email and web-based communication between patients and their providers have diffused very slowly in clinical practice. To address provider and payer concerns about the use of these technologies, we performed a randomized controlled trial of a triage-based email system in primary care. Did this system change patient attitudes towards electronic communication or clinic communication in general?
METHODS: The setting was two large academic primary care centers employing 24 clinical faculty and 74 residents. Patients of "study" physicians (N = 50) were encouraged to communicate with physicians and staff via a triage-based email system managed by staff. Patients of "control" physicians (N = 48) were not given access to the system. We assessed patient attitudes about electronic communication and communication in general with physicians and staff after a 9 month study period (N = 750, response rate 65%).
RESULTS: The table shows attitudes scale scores (the percentage of respondents who fell in each score group) by study groups. Scores on the barriers scale (attitudes towards barriers to using email with physicians and staff with higher scores indicating more barriers, 7 items, alpha .76) were somewhat lower in the study vs control group physicians ($p = .04$). Scores on the benefits scale (attitudes towards the benefits of using email with physicians with higher scores indicating more benefits, 5 items, alpha .84) were somewhat higher for study vs control groups ($p = .03$). However, scores on the "gencom" scale (attitudes towards general communication with physicians and staff, 7 items, alpha .87) were the similar for both groups.
CONCLUSION: A triage-based email system decreased patient perceived barriers to and increased benefits of email use with physicians and staff in primary care but it did not affect attitudes towards general communication with the clinic staff.

**Patient Attitudes Towards Email and General Communication With Physicians and Staff**

| | | Study | % | | Control | % |
|---|---|---|---|---|---|---|
| Score | Barriers | Benefits | Gencom | Barriers | Benefits | Gencom |
| 1 | 33 | 8 | 5 | 26 | 9 | 8 |
| 2 | 25 | 15 | 14 | 20 | 22 | 12 |
| 3 | 25 | 21 | 29 | 27 | 16 | 33 |
| 4 | 13 | 36 | 32 | 17 | 38 | 28 |
| 5 | 6 | 20 | 20 | 15 | 15 | 19 |
| Total | 100 | 100 | 100 | 100 | 100 | 100 |

**TREATMENT DECISION MAKING IN EARLY-STAGE BREAST CANCER—SHOULD PHYSICIANS MATCH PATIENTS' DESIRED LEVEL OF INVOLVEMENT?** N.L. Keating[1], E. Guadagnoli[2], M.B. Landrum[2], J.C. Weeks[3]; [1]Brigham and Women's Hospital and Harvard Medical School, Boston, MA; [2]Harvard Medical School, Boston, MA; [3]Dana Farber Cancer Institute, Boston, MA *(Tracking ID #51849)*

BACKGROUND: Patients' preferences for participation in treatment decisions vary, and little is known about how often patients' actual roles in decision making match their desired roles or whether patients benefit when such a match occurs. We sought to describe desired and actual roles in treatment decision making among patients with early-stage breast cancer, identify how often patients' actual roles matched their desired roles, and examine whether matching of actual and desired roles was associated with type of treatment received and satisfaction.
METHODS: We identified all women with newly diagnosed early-stage breast cancer at 47 participating hospitals in Massachusetts or Minnesota during 1993–1995. We abstracted medical records and surveyed patients after primary treatment for their breast cancer. We asked women about their desired and actual roles in treatment decision making with their surgeon and used logistic regression to assess whether matching of actual to desired roles was associated with type of surgery and satisfaction, adjusting for other patient, surgeon, and hospital characteristics.
RESULTS: 1081 women participated in the survey (response 70%). Most patients (64%) desired a collaborative role in decision making, but only 33% reported actually having such a collaborative role when they discussed treatments with their surgeons. Overall, 49% of

women reported an actual role that matched their desired role, 25% had a less active role than desired, and 26% had a more active role than desired. In adjusted analyses, patients whose reported actual role matched their desired role were no more likely than others to undergo breast-conserving surgery (P > 0.2), but these women were more satisfied with their treatment choice (83.5% very satisfied; reference) than those whose role was less active than desired (72.9% very satisfied; P = 0.02) or more active than desired (72.2% very satisfied; P = 0.005).
CONCLUSION: Only about half of patients reported an actual role in decision making that matched their desired role. These patients were more satisfied with their treatment choice than other patients, suggesting that women with early-stage breast cancer may benefit from physicians' efforts to identify their preferences for participation in decisions and tailor the decision-making process to them.

**HOW IS OUTPATIENT CARE IN THE 2 YEARS PRIOR TO BREAST CANCER DIAGNOSIS ASSOCIATED WITH STAGE AT DIAGNOSIS?** N.L. Keating[1], M.B. Landrum[2], E. Guadagnoli[2], E.P. Winer[3], J.Z. Ayanian[1]; [1]Brigham and Women's Hospital and Harvard Medical School, Boston, MA; [2]Harvard Medical School, Boston, MA; [3]Dana Farber Cancer Institute, Boston, MA *(Tracking ID #51915)*

BACKGROUND: Stage is a strong predictor of outcomes for women diagnosed with breast cancer. We examined outpatient visits in the 2 years prior to breast cancer diagnosis to identify whether the number and specialty of physicians seen was associated with stage at diagnosis for elderly breast cancer patients.
METHODS: We used SEER-Medicare data to identify 11234 women aged 67 and older diagnosed with stage I–IV breast cancer in 1995–1996. We identified all office visits during the 2 years prior to diagnosis (excluding the 2 months prior to diagnosis so as not to include visits for diagnostic evaluation) and documented the specialty of the provider seen at each visit. We classified women based on whether they had visits with a primary care physician (PCP), a medical specialist, both a PCP and a medical specialist, other specialists but no PCP or medical specialist, or no outpatient visits. For each group, we estimated the proportion of women diagnosed with advanced (stage III/IV) breast cancer, adjusting for patient characteristics and mammography use.
RESULTS: Women in the cohort had a mean age of 76 years and 10% were nonwhite. 11% were diagnosed with advanced-stage breast cancer. Most women (84%) had at least one visit with a PCP in the 2 years prior to diagnosis, 37% had at least one visit with a medical specialist, and 6% had no outpatient visits. The adjusted proportion of women diagnosed with advanced-stage cancer by providers seen in the 2 years before diagnosis is presented in the Table (P < 0.001 for overall effect of providers on stage). In an additional analysis that also adjusted for the total number of visits, women with more visits were less likely to be diagnosed with advanced breast cancer (P > 0.001).
CONCLUSION: Patients who see a PCP, a medical specialist, or both are less likely than other patients to be diagnosed with advanced-stage breast cancer. Women with no claims for outpatient visits to a PCP or a medical specialist are at high risk for late diagnosis of breast cancer, and may benefit from targeted outreach encouraging them to seek care.

**Adjusted Proportion Diagnosed with Advanced Cancer by Specialty of Providers Seen**

| | % of Sample | % with Advanced Stage |
|---|---|---|
| PCP, no medical specialist | 53% | 10% |
| Medical specialist, no PCP | 6% | 10% |
| PCP and medical specialist | 31% | 9% |
| Other specialist, no PCP or medical specialist | 4% | 17% |
| No outpatient visits | 6% | 21% |

**COMPARING DIABETES QUALITY MEASURES DERIVED FROM DIFFERENT DATA SOURCES.** E.A. Kerr[1], D.M. Smith[1], M.M. Hogan[2], L.M. Pogach[3], R.A. Hayward[1]; [1]VA Ann Arbor Healthcare System and University of Michigan, Ann Arbor, MI; [2]VA Ann Arbor Healthcare System, Ann Arbor, MI; [3]VA New Jersey Healthcare System and the University of Medicine and Dentistry of New Jersey, East Orange, NJ *(Tracking ID #50728)*

BACKGROUND: Little is known about the relative reliability of different data sources commonly used to assess diabetes quality of care. Our objectives were to 1) compare results of technical diabetes quality measures constructed from medical record and administrative data sources; 2) examine whether facility level variation varies for different types of measures and method of construction; and 3) determine how closely hybrid quality measures, which require examining the medical record only if the administrative data suggested that a service had not been performed, approximate medical record results.
METHODS: We abstracted medical records of 1085 diabetic patients who received care from 21 Veterans Health Administration (VHA) facilities and who had answered the Diabetes Quality Improvement Program (DQIP) survey. Administrative data were obtained from a central VHA diabetes registry that contained information on laboratory tests and medication use. We constructed 6 DQIP-based quality measures (3 process, and 3 intermediate outcome) from each data source, and for the hybrid form, for the same time frame (1999–2000) and compared our results using success rate, agreement beyond chance (kappa), and variance attributable to the facility level (intra-class correlation coefficient).
RESULTS: Success rates were higher for process measures derived from medical record versus administrative data (e.g., 78% vs. 68% for LDL measured; 84% vs. 78% for A1c measured). This difference narrowed for intermediate outcome measures (e.g., 79% vs. 76% for LDL < 130; 86% vs. 88% for A1c < 9.5%). Agreement for measures derived from the medical record compared to administrative data was moderate for process measures (e.g.,A1c measured, kappa = 0.61) but high for intermediate outcome measures (e.g., A1c<9.5%, kappa = 0.92). Results were similar for checking and controlling blood pressure. Hybrid measures yielded success rates similar to those of medical record based measures, but would have required abstraction of less than 30% of the total records. All process measures, but no intermediate outcome measures, showed significant variation attributable to the facility, regardless of the data source.
CONCLUSION: We found that agreement between medical record and administrative data was generally high. Nonetheless, even in an integrated healthcare system with sophisticated information technology, administrative data tended to underestimate the success rate in technical process measures for diabetes. Applying hybrid methodology yielded results consistent with the medical record but required much less data to come from medical record reviews. Despite the high rates in overall performance, further research should examine the underlying reasons for facility level variation in diabetes process measures in order to craft appropriate quality improvement programs.

**HEALTH SERVICES UTILIZATION IN OUTPATIENT DRINKERS.** K.L. Kraemer[1], S.A. Maisto[2], J. Conigliaro[1], A.J. Gordon[3], M.A. Mcneil[1], M.E. Kelley[1]; [1]University of Pittsburgh, Pittsburgh, PA; [2]Syracuse University, Syracuse, NY; [3]University of Pittsburgh Medical Center, Pittsburgh, PA *(Tracking ID #52260)*

BACKGROUND: Alcohol dependent individuals use health care resources at high rates. Little is known about whether individuals with less severe drinking also use services at high rates.
METHODS: 13,439 adult patients from 12 primary care clinics were screened for alcohol problems using the Alcohol Use Disorders Identification Test (AUDIT) and quantity-frequency questions. At baseline, enrolled subjects completed the DSM-IV Diagnostic Interview Schedule and a self-report 6-month health services utilization questionnaire. Alcohol problems were categorized as hazardous use (defined as an AUDIT score of >8 or an alcohol intake of 4 standard drinks >4×/wk in men and 3 standard drinks >4×/wk in women), alcohol abuse, and alcohol dependence. For comparison, 50 safe-drinking subjects were enrolled from the same primary care sites. Medical records were reviewed in a subset of subjects. 6-month services utilization counts were analyzed using zero-inflated poisson regression.
RESULTS: 351 subjects (Ns: 192 (55%) hazardous use, 52 (15%) alcohol abuse, 57 (16%) alcohol dependence, and 50 (14%) safe drinkers) had complete baseline self-report data. Alcohol dependent subjects reported significantly more outpatient (mean visits: 4.4 vs. 2.1, p < 0.001) and emergency room (mean visits: 0.4 vs. 0.08, p = 0.003) visits than safe drinkers. Hazardous drinkers reported more emergency room visits (mean: 0.17 vs. 0.08, p = 0.008) than safe drinkers but did not differ in outpatient visits nor hospitalization. Medical record review in 165 subjects (Ns: 94 (57%) hazardous use, 22 (13%) alcohol abuse, 26 (16%) alcohol dependence, and 23 (14%) safe drinkers) indicated significantly higher outpatient, emergency room, and inpatient hospitalization counts for all 3 alcohol use groups when compared to safe drinkers. In addition, the probability of a utilization episode directly related to alcohol use increased in a trend-like manner as alcohol use progressed from safe drinking to dependence.
CONCLUSION: On self-report, alcohol dependent outpatients had significantly higher services utilization over 6 months when compared to safe drinkers. Medical record review suggested that services utilization was also significantly higher for outpatients with less severe problem drinking (hazardous use and alcohol abuse).

**CHANGES IN DEMAND FOR GENERALISTS AND SUBSPECIALISTS IN THE 1990S.** Y.S. Kwok[1], R. Bernacki[2], C. Kim[1]; [1]University of Michigan, Ann Arbor, MI; [2]University of Washington, Seattle, WA *(Tracking ID #51324)*

BACKGROUND: Recently, there have been fears of an oversupply of subspecialists and a shortage of generalists. These concerns stem from mathematical models, circumstantial evidence, and anecdotal reports. However, the marketplace demand for subspecialist and generalist physicians has not been closely examined. Tracking job advertisements is an accepted method for quantifying demand for a particular service. We examined physician recruitment advertisements in the three journals most widely read by internists during the 1990s.
METHODS: We reviewed the internal medicine physician recruitment advertisements of the Journal of the American Medical Association (JAMA), the New England Journal of Medicine (NEJM), and the Annals of Internal Medicine (Annals) from 1992 to 1999. Cardiology, endocrinology, gasteroenterology, geriatrics, hematology/oncology, infectious disease, nephrology, pulmonary/critical care, and rheumatology positions were considered as subspecialist positions. General internal medicine, primary care, and hospitalist positions were considered as generalist positions. Two physician abstractors examined the January, May, and September issues of each journal and recorded the number of positions advertised for each of the categories above. We summed the number of subspecialist and generalist positions, and generated a ratio of the total number of subspecialist positions to the total number of generalist positions. We then examined the pattern in this ratio over time.
RESULTS: The total number of positions advertised as well as the ratios of internal medicine subspecialist to internal medicine generalist positions differed greatly between the journals. NEJM carried the greatest number of internist positions per issue (mean 239, SE 13) and the highest ratio (mean 2.37, SE 0.89). Annals had the second highest number of positions per issue (mean 117, SE 7), and JAMA had the lowest (mean 45, SE 5). Annals and JAMA had similar ratios of subspecialist to generalist positions, 0.38, SE 0.04, and 0.45, SE 0.06 respectively. Despite these differences, the trend of the ratios over time were similar for all three journals. The ratios of advertisements for subspecialists to generalists reached their nadir for all three journals in 1995 (NEJM 0.78, Annals 0.15, JAMA 0.08), and rose linearly through the rest of the 1990s (test for trend, p < 0.001). At the end of the 1990s, the ratios had risen to 5.53 for NEJM, 0.87 for Annals, and 0.69 for JAMA, reflecting a greatly increased demand for internal medicine subspecialists as well as a small reduction in demand for internal medicine generalists.
CONCLUSION: Relative demand for subspecialists as opposed to generalists reached a nadir in 1995 and rose thereafter. Examination of advertisements reveals that the marketplace demand for internal medicine subspecialists remains robust.

**DO FALSE POSITIVE MAMMOGRAMS IMPACT A WOMAN'S DECISION TO SEEK MEDICAL CARE?** G.C. Lamb[1], R. Sparapani[1], A.B. Nattinger[1]; [1]Medical College of Wisconsin, Milwaukee, WI *(Tracking ID #52049)*

BACKGROUND: Healthy people faced with a new diagnosis may develop a "labeling" phenomenon. Although no more ill than their counterparts, these individuals adopt a "sick" role leading to increased absenteeism, disability and visits to the doctor. It is well documented that false positive mammograms can lead to substantial anxiety, but the clinical significance of this is unclear. We hypothesized that such anxiety will lead to development of a labeling phenomenon in some women manifested as increased visits to physicians. The purpose of this study was to test this hypothesis using Medicare data to determine if a false positive mammogram leads to increased physician visits and utilization of health resources during the year following the test.
METHODS: Patients were identified within the cancer free control group (cohort) from the SEER/Medicare linked databases. This database has been constructed from merged files of the National Cancer Institute's cancer registry and HCFA's Medicare files from 11 regions around the US. For research purposes, this has been linked to a 5% sample of Medicare patients living within the SEER areas, purged of patients with cancer. All women within the cohort who received bilateral mammograms during the years 1994 or 1995 were identified. Exclusions included women with breast cancer, those with records that did not extend at least 2 years before and 1 year after the index mammogram, a prior mammogram less than 11 months before the index test or breast cancer treatment within one year of the mammogram. False positives (FP) were defined as any mammogram followed by a repeat mammogram within 11 months, an ultrasound of the breast, needle aspiration or a biopsy. All others were defined as true negatives(TN). Office visits and total charges for the year following the index mammogram were calculated for each group. Breast related visits and charges were excluded.
RESULTS: 13406 cases met the inclusion criteria of whom 702 (5.2%) met the criteria for false positives. Prior to the index mammogram the median visit rate for both groups was 6.0 visits/year. In the year following the index mammogram, the FP group had a median of 7.0 visits versus 6.0 for the TN group (p = 0.004 after adjustment for age, race, Medicaid status and SEER area). Median charges for the FP group increased $127 vs. $71 in the TN group (p = 0.32 after adjustment). Although not included, breast related charges cost the FP group an additional $1220/patient versus $0.80/patient in the TN group.
CONCLUSION: In this Medicare population, women who have a false positive mammogram are more likely to visit their physicians in the year following the test than women with a negative test, above and beyond the visits and tests needed to evaluate the abnormal test. This is suggestive of a possible labeling phenomenon and emphasizes that the anxiety engendered by a false positive screening test may have significant clinical impact.

**CHANGES IN SATISFACTION AMONG PRIMARY CARE AND SPECIALISTS PHYSICIANS 1997–1999.** B.E. Landon[1], J. Reschovsky[2], D. Blumenthal[3]; [1]Harvard University, Boston, MA; [2]Center for Studying Health Systems Change, Washington, DC; [3]Partners Healthcare, Boston, MA *(Tracking ID #51043)*

BACKGROUND: Over the past decade, a confluence of forces has changed the practice of medicine in unprecedented ways. Evidence suggests that physicians are becoming extremely unhappy in this environment. We conducted this study to determine changes in satisfaction in a large nationally representative sample of physicians and to describe market and practice factors associated with changes in physician satisfaction.
METHODS: This analysis used survey data collected from a nationally representative panel of primary care and specialist physicians from 60 sites across the country who provide direct patient care at least 20 hours per week. We analyzed changes in physicians' overall satisfaction with their career and the proportion of physicians with increased or decreased satisfaction in particular sites using responses from 3, 476 primary care and 2,443 specialists physicians who participated in Round 1 (1997) and Round 2 (1999, panel response rate 78%) of the Community Tracking Study (CTS) Physician Survey.
RESULTS: Between 1997 and 1999, 25.7% of physicians reported decreased satisfaction and 17.9% of physicians reported improved satisfaction. Overall means mask significant differences across the 60 sites. Among the 12 CTS sites randomly selected for more intensive study, the proportion of respondents reporting decreased satisfaction ranged from 16.2% to 31.7%. None of these sites showed a statistically significant increase in satisfaction. In multivariable models, the strongest and most consistent predictors of change in satisfaction were changes in measures of clinical autonomy and physicians' ability to obtain services for their patients. Changes in exposure to managed care were weakly related to changes in satisfaction.
CONCLUSION: Our data suggest that physician satisfaction is declining and that this decline varies by market. Rather than declining income, threats to physicians' autonomy and physicians' ability to manage their day-to-day interactions with patients and provide high quality care appear to be the most significant factors related to declining satisfaction.

**PHYSICIAN SPECIALIZATION AND ANTIRETROVIRAL THERAPY FOR HIV: ADOPTION, USE, AND ADHERENCE IN A NATIONAL PROBABILITY SAMPLE OF PERSONS INFECTED WITH HIV.** B.E. Landon[1], I. Wilson[2], M.D. Wong[3], S.E. Cohn[4], C.J. Fichtenbaum[5], N.S. Wenger[3], S.A. Bozzette[6], M.F. Shapiro[3], P.D. Cleary[1]; [1]Harvard University, Boston, MA; [2]New England Medical Center, Boston, MA; [3]University of California, Los Angeles, Los Angeles, CA; [4]University of Rochester, Rochester, NY; [5]University of Cincinnati, Cincinnati, OH; [6]University of California, San Diego, San Diego, CA *(Tracking ID #51251)*

BACKGROUND: Since the introduction of the first protease inhibitor in January 1996, there has been a dramatic change in the treatment of persons infected with HIV. The changing nature of HIV care has important implications for the types of physicians that can best care for patients with HIV infection. In this study we assess the association of specialty training and experience in the care of HIV disease with the adoption and use of highly active anti-retroviral therapy and with patient adherence.
METHODS: This analysis used data collected from a national probability sample of non-institutionalized persons with HIV infection participating in the HIV Costs and Service Utilization Study (HCSUS) and their primary physicians. We assessed whether rates of HAART use and adherence at 12 months and 18 months after the approval of the first protease inhibitor were related to physician's specialty and subspecialty training, experience with HIV as defined by their volume of HIV patients, self-rated HIV expertise, and HIV knowledge for 1,820 patients and 374 linked physicians.
RESULTS: Forty percent of the physicians were formally trained in infectious diseases (ID), 38% were general medicine physicians with expertise in the care of HIV, and 22.2% were general medicine physicians without expertise in the care of HIV. The majority of physicians (69%) reported a current HIV caseload of 50 patients or more. In Multivariable models controlling for patient characteristics, there were no differences between generalist experts and ID physicians in rates of HAART use. When compared to ID physicians, however, patients being treated by non-expert general medicine physicians were less likely to be on HAART. Patients being treated by low volume physicians were also much less likely to be on HAART therapy than those treated by medium or high volume physicians. We found no differences, however, in adherence to HAART therapy according to these physician characteristics.
CONCLUSION: Similar proportions of patients treated by expert generalists and ID specialists were on appropriate HAART therapy by December 1996 and July 1997. Patients treated by non-expert generalists, most of whom were the lowest volume physicians, were much less likely to be on appropriate antiretroviral therapy. Our findings demonstrate that expert generalists who develop specialized expertise, are able to provide care of quality comparable to that of specialists.

**SUBSTANCE ABUSE AND MENTAL ILLNESS: A POPULATION-BASED PREVALENCE STUDY.** K.E. Lasser[1], H.R. Barnes[1]; [1]Cambridge Hospital/Harvard Medical School, Cambridge, MA *(Tracking ID #50688)*

BACKGROUND: Drug and alcohol use disorders and non-substance use mental disorders are prevalent and frequently co-occur in the US population. We sought to determine the prevalence of active mental illness in persons who are current alcohol and drug users, using the most recent population-based data.
METHODS: We analyzed data from the National Comorbidity Survey, a Congressionally-mandated study of the prevalence of psychiatric disorders in a nationally representative sample of 8098 persons. We analyzed data from persons with and without current drug abuse, and persons with and without current alcohol abuse with regard to the presence of individual DSM-III-R diagnoses in the past month. We also compared rates of mental illness in respondents with current alcohol and drug abuse to those of respondents who had been abstinent for at least 1 year. In addition, we compared the mean number of comorbid mental illnesses, other than alcohol and drug abuse, among respondents with current drug abuse or current alcohol abuse to that of respondents without a substance abuse diagnosis in the past month. We used chi-square tests to compare differences between groups in the proportion of persons who had active mental illness, and used the Wilcoxon Rank Sum test to compare the mean number of comorbid mental illnesses between groups.
RESULTS: The population prevalence of current drug abuse was 2.4%, and of current alcohol abuse, 5.7%. Both groups had elevated rates of active mental illness when compared to persons without current drug abuse and alcohol abuse, respectively. Respondents with drug abuse had significantly higher rates of all DSM-III-R diagnoses than did respondents without drug abuse, while respondents with alcohol abuse had significantly higher rates of most mental disorders. Respondents with alcohol abuse and mental illness had a mean of 2.1 comorbid mental illnesses; respondents with drug abuse and mental illness had a mean of 2.4 comorbid mental illnesses, while mentally ill persons without past-month substance abuse had a mean of 1.7 comorbid mental illnesses ($p < .01$ and $p < .0001$, respectively). Respondents who had been abstinent from alcohol had a significantly lower rate of active mental illness (19.9%) than respondents who were currently abusing alcohol (28.8%, $p < .0001$). Similarly, respondents who had been abstinent from drugs had a significantly lower rate of active mental illness (21.3%) than respondents who were currently abusing drugs (37.2%, $p < .0001$).
CONCLUSION: Rates of mental illness are consistently higher in persons with active alcohol and drug abuse. To improve the care of persons with alcohol and drug abuse, mental health and substance abuse treatments need to be integrated. Substance abuse-related hospital admissions may be an opportune time to address mental health needs.

**EVIDENCE BASED MEDICINE AT THE POINT-OF-CARE.** I. Lenga[1], S. Straus[1]; [1]University of Toronto, Toronto, Ontario, Canada *(Tracking ID #51677)*

BACKGROUND: Information technology is providing physicians with unprecedented opportunities to access medical resources and improve decision making at the point-of-care. Personal digital assistants (PDAs) have gained popularity as a rapid and efficient tool for bringing evidence to the bedside. This study was designed to determine how current technology is being used by Internal Medicine residents, to assess their perceived barriers to using evidence resources, and to identify how information could best be delivered at the point-of-care.
METHODS: All core internal medicine trainees at the University of Toronto were invited by e-mail to participate in a 28 question internet-based survey. Questions were designed to assess medically related usage of PDA devices and of the internet. Participants were also asked how evidence resources should be delivered on PDAs.
RESULTS: 86 of 120 residents responded to the survey (72%). 97% of respondents had home access to the internet. They spent an average of 1.3 hr/d on the internet, with 37.5% of this time occupied with medical activities. 70% of respondents owned a PDA, and 73% of them used it daily. 30% of PDA usage was related to medical activities. 82% of respondents felt that PDAs improve clinical care. The most popular PDA resources were personal notes, medical calculators, and drug information databases. Respondents preferred to have evidence presented as clinical bottom lines, algorithms, and/or numerical summaries.
CONCLUSION: PDAs are widely used by medical residents. Housestaff believe that PDAs improve patient care and want concise, intelligible evidence resources available on PDAs. PDAs are well poised to effectively deliver this information at the point-of-care. Our future research will use this data to develop evidence based resources for PDAs and evaluate them in a randomized controlled trial.

**FINANCIAL NEEDINESS PREDICTS FUNCTIONAL DECLINE AND DEATH IN OLDER PATIENTS DISCHRGED FROM HOSPITAL.** A. Li[1], L. Sands[1], S.R. Counsell[2], R.H. Fortinsky[3], K.E. Covinsky[1], C.S. Landefeld[1]; [1]University of California, San Francisco and SFVAMC, San Francisco, CA; [2]Indiana University, Indianapolis, IN; [3]University of Connecticut, Farmington, CT *(Tracking ID #51146)*

BACKGROUND: Low income can make it difficult to pay for personal and health care needs, which we call financial neediness. Inability to pay for personal and health care needs may worsen health outcomes. Therefore, we hypothesized that financial neediness predicts adverse outcomes in older patients discharged from hospital.
METHODS: We conducted a prospective cohort study in 2285 medical patients ≥70 years old discharged from 2 hospitals to test the hypothesis that financial neediness predicts functional decline and death. At discharge, 6 items inquired whether the patient had enough money for 4 personal needs (groceries, bills, small emergencies and major emergencies) and 2 health care needs (prescriptions and medical/dental bills). Financial neediness from the patient's perspective was defined as the number of needs for which the patient did not have enough money ($NEEDS). Evidence of the validity of patient responses was provided by expected associations with reported household income and years of education: e.g., among patients with household income ≤$10K, $10K – $20K, $20 – $30K, and ≥$30K, ≥3$NEEDS were reported by 42%, 18%, 8% and 5% respectively (P < .001). Functional decline in activities of daily living (ADL) was defined as a decrease of ADL from time of discharge (DC) to 3 months post-DC in the number of ADL performed independently. Death in the year post-DC was determined through the National Death Index.
RESULTS: No $NEEDS were reported by 43% of patients, 1 – 2 $NEEDS by 35%, and ≥3$NEEDS by 22%. In patients with 0, 1 – 2, and ≥3$NEEDS, ADL decline occurred in 15%, 20% and 25% respectively (P < .001) and death in the year post-DC occurred in 26%, 28% and 34% respectively (P = .003). Subgroup analyses showed that $NEEDS were consistently associated with death in the year post-DC in men and women, in whites and blacks, and in patients older and younger than 80 yrs old. $NEEDS were also associated with ADL decline in each of the subgroups except for women. In a multivariate model controlling for race, age, gender, marital status, Charlson Score, Acute Physiology Score and admission ADL, $NEEDS predicted both mortality at one year (OR = 1.2; 95% CI 1.1 – 1.4) and ADL decline (OR = 1.3; 95% CI 1.1 – 1.5).
CONCLUSION: Financial neediness, as defined by the number of personal and health care needs for which patients did not have enough money, was common among older patients discharged from 2 hospitals and predicted ADL functional decline and death.

**HEALTH-RELATED QUALITY OF LIFE MEASURES IN ADULTS WITH SINUSITIS: A SYSTEMATIC REVIEW.** J.A. Linder[1], D.E. Singer[1], M. Van Den Ancker[1], S.J. Atlas[1]; [1]General Medicine Division, Massachusetts General Hospital, Boston, MA *(Tracking ID #46765)*

BACKGROUND: Symptoms suggestive of sinusitis are a common reason for patients to visit primary care providers and specialists. Assessing the appropriate role of treatment — for example, antibiotics for patients with acute sinusitis — requires valid, reliable, and responsive measures of outcome. Because objective measures of outcome are of limited value for patients with sinusitis, the primary goal of treatment is to improve health-related quality of life (HRQL) and relieve symptoms. We sought to identify HRQL instruments and symptom scores for adults with sinusitis and to assess their performance characteristics.
METHODS: We searched the MEDLINE, PREMEDLINE, and EMBASE databases; the Cochrane Library; and internet documents. We reviewed reference lists and made inquiries to experts in sinusitis and outcome assessment. We included English-language studies published after 1966 that used HRQL instruments or evaluated the performance characteristics of symptom scores in adults with sinusitis. Two reviewers independently extracted data on study design, setting, and patient characteristics; instrument length and format; and instrument validity, reliability, responsiveness to change, and interpretability. Studies were ranked using Gill and Feinstein's 10-point score for face validity of quality of life studies. Disagreements were resolved through discussion.
RESULTS: Of 1,187 articles in the original search, 169 were not English-language, and 682 were excluded based on title. 336 abstracts were evaluated in duplicate, and 257 were excluded by both reviewers ($\kappa$ = 0.80, 95% confidence interval 0.72 to 0.88). The remaining 79 articles were evaluated fully in duplicate. 23 articles using 11 HRQL instruments and 5 symptoms scores met inclusion criteria. The overall quality of these studies was low; only 3 studies scored higher than 4 of 10 points. No study was performed in a primary care setting. Three studies included patients with acute sinusitis, but only 1 included exclusively acute sinusitis patients. While there are deficiencies in the validation of all 16 instruments, 3 have had some aspect of validity, reliability, and responsiveness assessed: the Rhinosinusitis Outcome Measure-31, the Chronic Sinusitis Survey, and the Sinonasal Outcome Test-16. No instrument has been validated in patients with acute sinusitis. Only 2 instruments have had interpretability assessed, though none have reported the minimal change associated with clinically significant improvement.
CONCLUSION: Only three sinusitis-specific HRQL instruments have been assessed for validity, reliability, and responsiveness, with none validated in primary care settings or for patients with acute sinusitis. A lack of validated measures of outcome may limit current treatment recommendations for patients with acute sinusitis.

**IS ANTIBIOTIC USE ASSOCIATED WITH SHORTER PRIMARY CARE VISITS FOR ADULTS WITH RESPIRATORY ILLNESSES?** J.A. Linder[1], D.E. Singer[1], R.S. Stafford[2]; [1]Massachusetts General Hospital, Boston, MA; [2]Stanford Center for Research in Disease Prevention, Palo Alto, CA *(Tracking ID #46781)*

BACKGROUND: Antibiotic prescription for adults with respiratory illnesses may be used by primary care physicians as a timesaving maneuver and could potentially contribute to antibiotic overuse. We sought to determine if antibiotic use was associated with shorter visit duration for adults with common respiratory illnesses seeing primary care physicians.
METHODS: The National Ambulatory Medical Care Survey (NAMCS) is a nationally representative probability survey of office-based physician practices in the United States. Using NAMCS data from 1989 to 1999, we analyzed 7,433 acute primary care visits by adults aged 18 to 60 with sinusitis (26% of sample), upper respiratory tract infection (24%), bronchitis (22%), pharyngitis (20%), and otitis media (8%) that were 60 minutes or shorter in duration. We evaluated independent predictors of visit duration using multivariate linear regression.
RESULTS: The sample, which represents approximately 23 million annual visits to primary care physicians in the United States, was 64% female and 81% white. 47% of visits were to family practice physicians, 30% of visits were to internal medicine physicians, and 23% of visits were to general practice physicians. Mean visit duration was 13.3 minutes. Antibiotics were prescribed in 76% of visits. Mean visit duration associated with antibiotic use was 13.1 minutes versus 13.9 minutes without antibiotic use (p < .0001). In multivariate linear regression, independent predictors with greater than 1 minute effect on visit duration were Black race/ethnicity (1.1 minutes longer than whites; p = .001), Asian race/ethnicity (−1.6 minutes shorter than whites; p < .001), and internal medicine specialty (1.7 minutes longer than family practice specialty; p < .0001). Independently predictive of longer visits were patient age (0.18 minutes per decade; p = .02), calendar year (0.18 minutes per year; p < .0001), and diagnosis of acute bronchitis (0.6 minutes longer compared to upper respiratory tract infection; p = .02). Independently predictive of shorter visits were Midwestern location (−0.8 minutes compared with Northeast; p = .004), Western location (−0.8 minutes compared with Northeast; p < .005), and rural practice location (−0.5 minutes; p = .02). In our regression analysis, antibiotic use was an independent predictor of shorter visit duration (−0.5 minutes; 95% confidence interval −0.1 to −0.9 minutes; p = .02).
CONCLUSION: We identified many clinical and non-clinical factors that are related to visit duration for adults with acute respiratory illnesses seeing primary care physicians. Antibiotic use is independently associated with shorter visit duration. Although primary care physicians may use antibiotics as a tool to shorten visit duration, the differences we observe may be of only marginal practical significance.

**PUBLICLY FUNDED INTERFERON FOR HEPATITIS C IN ONTARIO: LOW ADHERENCE AND HIGH COSTS.** K.A. Locke[1], J. Hux[1], E.J. Heathcote[1], A.S. Detsky[1]; [1]University of Toronto, Toronto, Ontario, Canada *(Tracking ID #52330)*

BACKGROUND: Chronic hepatitis C (CHC) is a common illness associated with substantial morbidity and early mortality. Its former sole treatment, interferon-alpha (IFN) monotherapy, is expensive and not all patients respond to it. In addition, adherence to therapy is limited, and patients who stop therapy early do not benefit. Patients in Ontario who cannot afford IFN privately apply to the provincial Drug Benefit Program (ODB) where a clinical expert reviews their suitability for funded IFN therapy. We sought (a) to determine whether the profile of patients accepted and rejected for IFN conformed to guidelines in effect at the time of application; (b) to measure the proportion of approved patients that complete therapy; and (c) to measure the total cost of IFN and the cost for completed courses of IFN.
METHODS: We linked a clinical database, consisting of all Ontario patients applying for a first course of IFN for CHC during calendar years 1996 and 1997, with an ODB prescription database for 1996 through 1998. The clinical profile of each applicant was used to derive an "expected" decision about treatment, based on contemporaneous Canadian and American guidelines. This "expected" decision was then compared with the reviewers' actual decisions. Prescription records were used to estimate whether patients completed therapy. Records of IFN cost for each prescription were tallied.
RESULTS: 370 patients applied for funded IFN during the study period, of whom 86% (319/370) were accepted. 58.9% of all decisions agreed with "expected" decisions based on clinical profiles and guidelines (kappa = 0.23); 71% of patients disqualified by guidelines were actually approved by reviewers. Only 23.2% (74/319) of approved patients completed therapy. The total expenditure on IFN was Can$1.249-million over 3 study years, only $159,616 of which was spent on patients who completed therapy.
CONCLUSION: A large proportion of Ontario applicants for funded IFN therapy are approved, many against the recommendation of guidelines; moreover, only a small fraction of approved patients complete therapy. As a result, only 13% of the total IFN drug cost pays for treatment courses that have the potential to produce clinical benefit. These findings have implications for public funding of the more complex and expensive current regimens for hepatitis C.

**EARLY INDICATORS OF DISCHARGE PLANNING.** M. Louis Simonet[1], M.P. Kossovsky[1], P. Chopard[1], P. Sigaud[1], F.P. Sarasin[1], T.V. Perneger[2], J.M. Gaspoz[1]; [1]Department of Internal Medicine and Groupe de Recherche et d'Analyse en Systèmes et Soins Hospitaliers, Geneva, Switzerland; [2]Quality of care Unit and Groupe de Recherche et d'Analyse en Systèmes et Soins Hospitaliers, Geneva, Switzerland *(Tracking ID #51180)*

BACKGROUND: At the end of their hospital stay in general internal medicine, many patients are not able to return home directly. Their transfer to rehabilitation facilities is rarely anticipated, which generates inappropriate hospital days. We tried to identify, at the time of admission, patient characteristics associated with discharge to a place other than home.
METHODS: For patients consecutively admitted in the wards of general internal medicine between January and April 2001, we collected demographic (age, gender), social (living situation, social support, formal and informal help), and clinical (diagnoses, comorbidity index, functional autonomy, cognition, behavior pattern) characteristics upon admission, as well as past health care resource use (hospitalizations and emergency consultations). In parallel, residents were asked to predict, upon admission, patients' discharge destination and future functional autonomy. Two logistic regression models were used to identify variables associated with discharge destination to a place other than home.
RESULTS: 412 patients were enrolled; 20 patients, who died in hospital, were excluded from the analyses. Mean age was 65 ± 17 years; 51% were men; mean LOS was 11 ± 7 days. "Objective" variables associated with an increased risk of discharge to a place other than home were age, number of active medical problems, dependence in activities of daily living (ADLs),

and type of admission (Table); informal help by a spouse was associated with a decreased risk. An increased risk of discharge to a place other than home was also associated with "subjective" variables, i.e. residents' prediction of patients' dependence in ADLs and destination at discharge (Altered functional autonomy versus excellent: odds-ratio 3.0; 95% CI:1.3 to 7.0. Transfer to a rehabilitation facility versus discharge home: odds-ratio 11.7; 95% CI 6.8 to 20.1. LR chi2(2) = 113.3 AUC = 0.77).
CONCLUSION: Patients' characteristics upon admission predict a discharge destination to a place other than home, as well as residents' subjective clinical appraisal. Systematically identified upon admission, objective characteristics could reinforce clinical appraisal and allow better anticipation and planning of discharge towards rehabilitation facilities.

| Independent variables | Effect on LOS | CI 95% | p |
|---|---|---|---|
| Age (per additional decade) | + 1.89 | 0.5 to 3.2 | 0.007 |
| Number of altered organic systems | | | 0.02 |
| 1-2 systems (58 patients) | 0 | | |
| 3-5 systems (142 patients) | + 3.3 | - 1.4 to + 7.9 | 0.2 |
| 6 systems and over (23 patients) | + 10.6 | - 17.9 to - 3.2 | 0.005 |
| Presence of a person the patient could rely on (Yes vs. No) | - 11.1 | -18.2 to – 4.1 | 0.002 |
| Quality of informal help (per additional point on VAS) x Quality of psychological support (per additional point on VAS) | - 1.17 | - 1.9 to – 0.4 | 0.002 |

**IS TREATMENT OF MEDICAL INPATIENTS EVIDENCE-BASED? A STUDY OF THE IMPACT OF EVIDENCE ON PHYSICIANS' TREATMENT DECISIONS.** B.P. Lucas[1], A.T. Evans[1], B.M. Reilly[1], Y.V. Khodakov[1], K. Perumal[1], L.G. Rohr[1], J.A. Akamah[1], T.M. Alausa[1], C.A. Smith[1], J.P. Smith[1]; [1]Cook County Hospital and Rush Medical College, Chicago, IL *(Tracking ID #51492)*

BACKGROUND: Previous studies in Great Britain and Canada have shown that 82 – 84% of medical inpatients receive treatments supported by strong evidence. These studies provide no data about how physicians make these "evidence-based" decisions or whether they explicitly consider evidence in their decision – making process.
METHODS: We performed a before-after trial among a cohort of 33 attending physicians and a random sample of 146 patients admitted to their inpatient general medical services, with patients serving as their own controls. After the physicians had committed to a treatment plan, investigators performed standardized literature searches and provided the search results to the physicians. The primary study outcome was the number of patients whose physicians would change treatment due to the literature searches. Secondary outcomes included the proportion of searches that identified alternative treatments, the reasons physicians rejected those alternatives, and the proportion of treatments that were evidence-based before and after the searches.
RESULTS: As a result of the literature searches, attending physicians changed treatment for 24 (18%) of 131 eligible patients (95% CI: 12% to 24%), which can also be represented as a "number-needed-to-search" (NNS), the average number of searches needed to change one patient's treatment (NNS = 6 patients; 95% CI: 4 to 8). In 23 additional patients (18%), the literature searches identified potential alternative treatments rejected by the physicians for various reasons. Overall, treatments were evidence-based in 86% of patients (113 of 131) before the searches and in 87% (114 of 131) after the searches. Physicians were just as likely to change treatment if the patient's treatment before the search was evidence-based or not (P = 0.6).
CONCLUSION: Standardized literature searches convinced experienced attending physicians to change their treatments in 18% of a random sample of inpatients. These findings suggest that in-hospital literature searches can improve physicians' treatment decisions, even in a setting where 86% of patients already receive treatments supported by strong evidence.

**ANALYSIS OF CITATION RECORDS OF NOTABLES FROM YESTERYEAR'S MEDLINE: THE ACRONYM STUDY.** A.J. Lustig[1], D.A. Redelmeier[1]; [1]University of Toronto, Sunnybrook and Women's College HSC, Toronto, Ontario, Canada *(Tracking ID #52233)*

BACKGROUND: Many clinical trials published in the medical literature have titles that form acronyms. We studied whether trials with acronymic titles are cited more frequently than trials without acronymic titles of similar importance.
METHODS: All randomized controlled blinded trials that were lead articles in The New England Journal of Medicine published from January 1993 to December 2000 were examined for acronymic titles (eight total years). Each article was then subjected to citation analysis by using the Institute for Science Information's Science Citation Index.
RESULTS: In total we identified 34 articles with acronymic titles and 130 articles without acronymic titles (approximately one article every two weeks). A total of 8 articles were excluded because of anomalies in the Science Citation Index (6 with acronymic titles and 2 with non-acronymic titles). Most articles had more than six authors and the most common topic was cardiovascular medicine, with no major imbalances between the two groups. Overall, articles with acronymic titles were cited more than twice as often as their counterparts (390 vs 167, P < 0.001). Acronymic titles grew in prevalence over the eight year interval, and analysis of annualized citation frequency showed almost a 3-fold difference in favor of those with acronymic titles (84 vs 36, P < 0.001).
CONCLUSION: We found that leading medical publications are cited much more frequently if they have acronymic titles.

**BIO-MEDICAL AND PSYCHO-SOCIAL FACTORS ASSOCIATED WITH LENGTH OF STAY IN A GENERAL INTERNAL MEDICINE REHABILITATION FACILITY.** C. Luthy[1], M. Kossovsky[1], E. Perrin[2], C. Cedraschi[1], F. Herramnn[1], P. Chopard[1], A. Allaz[1]; [1]University Hospitals of GENEVA, GENEVA, Switzerland; [2]Ecole le Bon Secours, GENEVA, Switzerland *(Tracking ID #50623)*

BACKGROUND: The study aimed at identifying factors associated with length of stay (LOS) in a general internal medicine rehabilitation facility.
METHODS: The following data were collected upon admission among 263 patients consecutively referred by a physician in our service (88 beds) between April and June 2000: age, gender, living condition, formal help dispensed at home, functional autonomy according to Katz and Lawton (activities of daily living, ADLs, ranging from 0 to 6; instrumental activities of daily living, IADLs, ranging from 0 to 8) and a measure of comorbidity (number of altered organic systems). At the same time, patients were asked to precise the number of people they could rely on at home and to evaluate the quality of help and the quality of psychological support provided by these people (visual analog scale [VAS] ranging from 0 to 10). The association between LOS and the collected variables was analyzed by multivariate linear regression.
RESULTS: 223 patients were included in the analysis (40 patients were excluded because of cognitive impairment or aphasia). Women represented 56% of the patients, mean age was 71.7 years (SD = 14.9), mean LOS was 22.5 days (SD = 16.4), mean number of impairments in ADLs was 0.8 (SD = 1.6) and 3.5 (SD = 2.3) in IADLs. Patients reported a mean number of 3.0 (SD = 2.3) people providing informal help, the quality of such help was quoted to a mean 7.4 (SD = 2.3) and the psychological support to a mean of 8.1 (SD = 2.1) on the VAS. In multivariate analysis, only age, the presence of a person on which the patient could rely on and the other social support related variables could significantly predict LOS (Table).

| Independent variables | Odds-Ratio | IC 95% | p |
|---|---|---|---|
| Age (per additional decade) | 1.3 | 1.1 à 1.6 | <0.001 |
| Number of active medical problems (per additional problem) | 1.4 | 1.1 à 1.6 | 0.001 |
| Dependence in ADLs (per additional dependence) | 1.5 | 1.2 à 1.7 | <0.001 |
| Type of admission (Transfer versus home) | 2.1 | 1.1 à 4.0 | 0.02 |
| Informal help dispensed by spouse (Yes versus No) | 0.3 | 0.2 à 0.6 | <0.001 |

LR chi2 (5) = 107.7 AUC=0.80

CONCLUSION: Among these patients, LOS was predicted by age and the patients' evaluation of their psychosocial support rather than by biomedical variables. These findings should be taken into account for discharge planning in general internal medicine rehabilitation settings.

**THE LAST THREE YEARS OF LIFE THROUGH MEDICARE CLAIMS REVIEW.** J. Lynn[1], J. Blanchard[2], D. Campbell[3], R.L. Jayes[4], J. Lunney[5]; [1]RAND Center to Improve Care of the Dying, Arlington, VA; [2]RAND, Arlington, VA; [3]MORES, Thetford, VT; [4]George Washington University, Washington, DC; [5]National Institutes of Health, Bethesda, MD *(Tracking ID #51660)*

BACKGROUND: Services and costs near the end of life have come to be an important target of policy and pracice, since most people have substantial illness and care needs ahead of death, and since many reports have documented shortcomings in their care.
METHODS: We created a chronological and ordinary language version of the last three years of decedents' Medicare claims for 25 random elderly beneficiaries who died in 1996. Two physicians reviewed the records, conferring over disagreement.
RESULTS: Ages ranged from 69 – 96, with median 78 years; 60% female. At three years before death, 60% were already quite ill with conditions that eventually caused death. In contrast, 8% had no substantial claims. About half had a course dominated by cancer (20%) or organ system failure (28%). The other half (44%) had a course best characterized as "frailty," with each having many health care system contacts for imprecise or sporadic causes such as pneumonia, infections, injuries, or mental status changes. Heart failure diagnoses often were present in the "frail" in a few encounters, without confirmatory evidence from diagnostic procedures or intermittent exacerbations. The "cause of death" was difficult to discern in "frailty" patients and the median age was 87 years. Half of "frailty" patients had dementia, nursing home stay, decubiti, or prolonged home health care, indicating long-term serious disability. The timing of death arose from overt error or complications of a medical procedure for at least 28% and another 16% had some evidence for this course.
CONCLUSION: These results encourage including at least the last three years of life in studies of the end of life. Tallies of claims, preponderance of contacts, counts of co-morbidities, and even "cause of death" are likely to be misleading. Especially in older elderly, dying with multiple conditions is the usual situation. Results are promising for using trajectories of cancer, organ system failure, and frailty as the basis of service delivery design and risk adjustment. The end of life has become largely a time of long-term fragile health with death resulting often from a combination of health challenges and stresses from medical interventions.

**VISIT AGENDAS: AN EPIDEMIOLOGY OF GENERAL INTERNAL MEDICINE.** G. Makoul[1]; [1]Northwestern University Medical School, Chicago, IL *(Tracking ID #52362)*

BACKGROUND: Current perspectives on visit agendas (i.e., number and type of problems, issues, or concerns raised) in general internal medicine are often limited by the source and scope of data collected. We sought to better define the visit agenda through a detailed analysis of items generated by physicians and patients during office visits. We also gauged the extent to which visit agendas were associated with patient age, patient sex, and visit length.
METHODS: We analyzed a total of 494 videotaped visits to 20 general internists (10 in Chicago; 10 in Burlington, VT) for an average of approximately 25 patients per physician. Patient age ranged from 17 – 88 years (mean = 50.1, sd = 17.5); 54.9% were female. Physician age ranged from 30 – 48 years (mean = 37.7, sd = 5.3), with an average of 7.8 years in practice; 20% were female. Videotapes were independently coded by two trained research assistants, capturing the type (e.g., leg pain), category (e.g., physical), and status (e.g., new) of each agenda item; any disagreements were resolved through discussion.
RESULTS: Across all visits, the mean number of agenda items raised per patient visit ranged from 1 – 18 (mean = 5.63, sd = 2.95). Of these, an average of 1.59 (sd = 1.60) were newly raised concerns, 2.90 (sd = 2.10) had been discussed previously, and 1.13 (sd = 1.07) were established concerns requiring a new treatment or approach. Overall, physical problems were broached most frequently (53.6%), followed by health promotion (25.9%), administrative issues (15.8%), psychological/emotional problems (3.0%), and social concerns such as retirement or divorce

(1.5%). Visit length, which averaged 22:40 (sd = 13:48), increased with the number of agenda items (r = .46 p < .001). Visits with female patients tended to include 1 more agenda item than did those with males (mean = 6.08 vs 5.09, p < .001); while there was no associated time difference in Chicago, visits with female patients in Burlington took an average of 6min longer than did those with males (mean = 24:00 vs 17:54, p < .001). Visits with patients ≥45 years old included an average of 1.5 more agenda items than did those with younger patients (mean = 6.30 vs 4.76, p < .001), and took an average of 3:22 longer in Chicago (p < .05) and 2:52 longer in Burlington (ns).
CONCLUSION: As compared to diagnosis codes, chart-reviews, and self-reports, videotape is a robust source of detailed data regarding agenda items raised during medical encounters. Our observations illustrate the complex nature of general practice and reinforce the importance of working with patients to discuss and manage visit agendas in an increasingly time-sensitive practice environment.

**USAGE OF UPTODATE® AT AN ACADEMIC MEDICAL CENTER.** S.M. Maviglia[1], M.T. Martin[1], S.J. Wang[1], K.E. Burk[1], F.Y. Chang[1], L. Markson[2], P. Bonis[3], G.J. Kuperman[1]; [1]Partners HealthCare System, Inc., Chestnut Hill, MA; [2]CareGroup Healthcare System, Boston, MA; [3]UpToDate, Wellesley, MA *(Tracking ID #51917)*

BACKGROUND: Electronic medical resources are becoming increasingly accessible at the point of care. However, little is known about who uses them, and when and where they are used in the health care delivery process. We used a web-based survey instrument to determine the demographics and usage patterns of UpToDate® (UTD) users at a tertiary academic medical center.
METHODS: A sample of physicians and nurse practitioners (NPs) at Brigham & Women's Hospital (BWH) and Massachusetts General Hospital (MGH) was emailed invitations to complete an online web survey about their use of UTD.
RESULTS: We received 550 responses from 2011 emailed invitations (27.3%). About two-thirds (63%) were attending physicians, 19% trainees, and 15% NPs. Respondents averaged 67% clinical time, and 70% classified themselves as predominantly outpatient. One-third (36%) practiced general medicine, 47% were medical specialists, and the remainder were surgeons or other. About two-thirds (64%) of the respondents described themselves as UTD users (at least 3 uses per month). Users accessed UTD an average of 14 times per month, and 17% used it exclusively as their only electronic reference. Over 40% of non-users said they either were unaware of this resource or had not had time to learn to use it. Actual usage occurred most often before or after patient contact, but 50% had used UTD in the presence of the patient. UTD was primarily used to look up disease-related information, including diagnosis and treatment; however, 85% of NPs used it for medication information (as opposed to only 53% of physicians). Over 90% of users reported that using UTD was integral to their decision making, but less than half reported that it eliminated the need for a referral. In the subgroup analyses, there was no significant difference in usage patterns among specialists and non-specialists, nor between clinicians who spent high or low percentages of their time seeing patients. Physicians were more likely than NPs to use UTD to educate themselves (84% vs. 67%, p < 0.0001); and among physicians, trainees were more likely than attendings to use UTD to educate themselves (96% vs. 77%, p < 0.0001). NPs, on the other hand, used it more often to educate patients (69% vs. 35%, p < 0.05).
CONCLUSION: Electronic medical references (UpToDate®) are frequently utilized to guide patient management at all steps of the health care delivery process. Physicians and nurse practitioners use the same resource in different ways and for different purposes. Usage patterns also vary with physician level of training, but not with specialty. Non-use of UpToDate®) is primarily due to lack of familiarity with this resource. Limitations of the study are that the results may not be generalizable to non-academic centers, and medical students and staff nurses were not included in the survey.

**VIEWS OF SINGLE-PAYER NATIONAL HEALTH INSURANCE: A SURVEY OF MASSACHUSETTS PHYSICIANS.** D. Mccormick[1], D.U. Himmelstein[1], S. Woolhandler[1], D.H. Bor[1]; [1]The Cambridge Hospital and Harvard Medical School, Cambridge, MA *(Tracking ID #51360)*

BACKGROUND: The number of uninsured Americans continues to climb, and medical care costs are once again rising rapidly. One proposed solution is single-payer national health insurance (NHI). Because of their unique role in the health care system, physicians could represent either a barrier to or catalyst for such reform. Yet, physicians' views of NHI have not been well studied.
METHODS: We conducted a mailed survey of a random sample of Massachusetts physicians (from the AMA Master file) regarding their views on NHI, as well as on health policy and physician work-life issues which might be addressed by NHI. We also assessed the association between support for each of these issues and support for NHI.
RESULTS: 904/1787 physicians responded to our survey (50.6%). Respondants did not differ from non-respondants with regard to gender or year of graduation from medical school, but differed slightly in specialty-mix. When asked which structure would provide the best care for a fixed amount of money, 63% of physicians chose NHI, 11% chose managed care and 26% fee-for-service in a competative market. Yet, only 52% believed that physician colleagues support NHI. A clear majority preferred to work under a salary system, would give up income to reduce paperwork, believe that it is government's responsibility to ensure provision of medical care and would not allow insurance firms to play a major role in health care. Support for each of these ideas is associated with support for NHI.
CONCLUSION: A clear majority physicians in the state of Massachusetts favor NHI over both managed care and fee-for-service systems. If physicians elsewhere hold similar views, doctors could play a major role in a renewed push for NHI.

**TESTING FOR COCAINE USE WITHOUT CONSENT IN EMERGENCY DEPARMENT PATIENTS WITH CHEST PAIN.** D. Mccormick[1], S. Woolhandler[1], D. Himmelstein[1], D. Bor[1]; [1]The Cambridge Hospital and Harvard Medical School, Cambridge, MA *(Tracking ID #52034)*

BACKGROUND: Guidelines recommend asking patients with acute chest pain (ACP) about cocaine use. Testing for cocaine without patient consent, however, is ethically questionalble and may result in legal, employment or other harms to the patient.
METHODS: We surveyed all 121 directors of emergency medicine training programs in the United States to assess the frequency of asking about cocaine use, testing for cocaine, and consent for such testing when performed in patients with ACP in their emergency departments (EDs). These 3 questions were asked for 2 clinical vignettes of ACP patients who differed only by sociodemographic features. Questions used a 5 point Likert scale (very likely, somewhat likely, as likely as not, somewhat unlikely and very unlikely).
RESULTS: 86/121 (71%) program directors responded to the survey. Comparing a vignette describing a 60 y.o. executive with one describing a 30 y.o. ex-convict, being asked about cocaine use would be "likely" (very or somewhat likely) to occur in 41% and 95% of EDs respectively, testing for cocaine use would be "likely" to occur in 16% and 62% of EDs, yet consent for this testing would be "unlikely" (somewhat or very unlikely) to be obtained in 71% and 79% of EDs. Even after asking about cocaine use, 37% and 64% of EDs would test for it in the 60 y.o. executive and 30 y.o. ex-convict vignettes respectively.
CONCLUSION: In the EDs that train America's emergency department physicians, not all patients with ACP are asked about cocaine use, yet many are tested for cocaine use without their consent. This practice is applied differentially according to sociodemographic characteristics of patients. Physicians could avoid a potential ethical breach and possible tangible harm to patients by asking about, but not testing for cocaine use in all competant patients with ACP in the ED.

**INFLUENZA IMMUNIZATION AMONG MEDICARE BENEFICIARIES 1992–1996: HIGHER RATES BUT DISPARITIES PERSIST.** W.P. Moran[1], S. Yu[1], J. Chen[1]; [1]Wake Forest University, Winston-Salem, NC *(Tracking ID #51881)*

BACKGROUND: Annual influenza immunization reduces morbidity, mortality and acute care service utilization among high-risk groups, one of which is individuals age 65 and older.
METHODS: Data from the Medicare Current Beneficiary Surveys (1992 to1996), a national probability sample of the Medicare population, were analyzed using robust logistic regression approach with self-reported influenza immunization as the dependent variable.
RESULTS: Data were complete and analyzable for 47081 respondents: 58% female, 87% white, 38% age 75–84 and 20% age 85+, 32% reported incomes under $10,000, and 14.7% enrolled in an HMO. Likelihood of immunization steadily increased over the years from 1992 (reference), 1993 (OR = 1.07), 1994 (OR = 1.51), 1995 (OR = 1.61) and 1996 (OR = 1.89). Non-whites had lower odds of immunization OR = 0.62. Odds of reporting influenza immunization significantly increased with age (65–74 as reference) 75–84 yrs (OR = 1.44), and age >85 yrs (OR = 1.48), years of education (<9 yrs as reference), 9–12 years (OR = 1.27), >12 years (OR = 1.67), income (<$10k as reference) $10–19,999 (OR = 1.22), $20–29,999 (OR = 1.49), $30–49,999 (OR = 1.68), >$50 (OR = 1.54), any Part B coverage (OR = 1.2–1.66), or HMO enrollment (OR = 1.58) with all at p < .0001. The presence of most chronic illnesses (OR = 1.18 to1.59) and less than excellent health status (OR = 1.13 to 1.12) was less likely associated with the immunization. There were no statistically significant differences in likelihood of the immunization in gender, living alone, urban/rural, ADL impairment, stroke, mental illness, Parkinson's disease or hip fracture.
CONCLUSION: The nation-wide efforts dramatically increased annual influenza immunization rates in the Medicare population over the years 1992–1996. Historically underserved older adult populations with low social and economic status remained under-immunized.

**PRIMARY CARE PHYSICIAN SATISFACTION WITH TRACKING ABNORMAL RESULTS AND ATTITUDES CONCERNING CLINICAL DECISION SUPPORT SYSTEMS.** H.J. Murff[1], T.K. Gandhi[1], A.S. Karson[2], E.A. Mort[2], E.G. Poon[1], S.J. Wang[1], D.G. Fairchild[1], D.W. Bates[1]; [1]Division of General Internal Medicine, Brigham and Women's Hospital, Boston, MA; [2]General Medicine Unit, Massachusetts General Hospital, Boston, MA *(Tracking ID #50271)*

BACKGROUND: One of the most frequent causes of lawsuits in outpatients is failure to follow up abnormal results. Information systems could assist providers in abnormal test result tracking, yet little is known concerning providers attitudes toward outpatient decision support. Therefore, we surveyed primary care physicians to assess satisfaction with their current systems for abnormal results tracking, as well as their attitudes concerning clinical decision support systems (CDSS).
METHODS: We surveyed 113 primary care physicians and 103 housestaff physicians affiliated with two major academic institutions in Boston. All eligible providers utilized a single electronic medical record (EMR) that did not have result tracking or CDSS. The survey instrument included questions concerning satisfaction with their current nonelectric methods for tracking abnormal results and attitudes towards CDSS. Questions were scored on a 7 point Likert scale and dichotomized with responses greater than 4 indicating agreement or satisfaction.
RESULTS: The overall response rate was 64% (139/216). Few respondents were satisfied with their current system for managing abnormal test results (Table 1). However, a high percentage agreed that CDSS assisting with these issues would be useful. Overall, 81% (105/130) agreed that they could better comply with patient care guidelines with electronic decision support (e.g. reminders).
CONCLUSION: Most primary care provider attendings and housestaff were not satisfied with their current methods for tracking abnormal test results. Our respondents believed that CDSS's are useful and could improve their ability to tracking abnormal results and to comply with guidelines.

**Table 1: Satisfaction with Tracking Test Results and Perceived Usefulness of CDSS.**

| | Percent Satisfied | Percent Agreeing That CDSS Would Be Useful |
|---|---|---|
| Abnormal laboratory results | 30% (36/119) | 96% (114/119) |
| Abnormal radiography results | 23% (27/119) | 96% (114/119) |
| Abnormal mammogram results | 31% (37/119) | 94% (112/119) |
| Abnormal Pap smear results | 31% (37/119) | 96% (114/119) |
| Preventive care guidelines | 58% (69/119) | 91% (108/119) |

**ELECTRONICALLY SCREENING DISCHARGE SUMMARIES FOR ADVERSE MEDICAL EVENTS.** H.J. Murff[1], A.J. Forster[2], J.F. Peterson[1], J.M. Fiskio[1], H.L. Heiman[1], D.W. Bates[1]; [1]Division of General Internal Medicine, Brigham and Women''s Hospital, Boston, MA; [2]Clinical Epidemiology Unit, Ottawa Hospital, Ottawa, Canada *(Tracking ID #51253)*

BACKGROUND: Improving patient safety requires the routine detection and measurement of adverse events (AE's). However, currently used techniques, such as spontaneous reporting and manual chart review are limited by either underreporting or high costs.
METHODS: We developed a computerized tool that searched free text narratives for trigger words representing possible AE's. Our deviation set included 424 randomly selected admissions to the medical services of one institution between January 01, and June 31, 2000. Discharge summaries screening positive were reviewed and trigger words were rated with regards to the likelihood of an AE. Medical records with possible AE's underwent chart review by two independent physician reviewers. The presence of an AE was assessed using structured implicit judgment. To calculate sensitivity and specificity, a random selection of medical records without trigger word alerts were also reviewed for AE's. Time logs were maintained during the discharge summary review.
RESULTS: 59% (251/424) of the discharge summaries had alerted trigger words. Based on discharge summary review, 38% (161/424) of the discharges were judged to include a possible AE. After medical record review, the tool detected 131 AE's. The sensitivity and specificity of the tool was 69% and 49% respectively (Table 1). The positive predictive value of the tool was 52%. In a validation cohort, the tool detected 136 events in 403 admissions, with a positive predictive value of 34%. The overall time necessary to screen the combined cohort using the electronic screening tool was 74 hours while a manual screening would have required 542 hours.
CONCLUSION: Electronic screening for AE within discharge summaries was both feasible and time-efficient. This method could allow researchers and quality managers to detect adverse events routinely.

**Table 1. Test Characteristics of the Screening Tool**

| | AE within Chart | No AE within Chart | Total |
|---|---|---|---|
| Trigger word within discharge summary | 131 | 120 | 251 |
| No trigger word within discharge summary | 60 | 113 | 173 |
| | 191 | 233 | 424 |

**THE EFFECT OF HEALTH INSURANCE COVERAGE ON DIABETES CARE; DATA FROM THE 2000 BEHAVIORAL RISK FACTOR SURVEILLANCE SYSTEM.** K. Nelson[1], M. Chapko[1], G. Reiber[1], J. Rodenbaugh[1], E.J. Boyko[1]; [1]VA Puget Sound Health Care System, University of Washington, Seattle, WA *(Tracking ID #51640)*

BACKGROUND: The purpose of this study is to describe the association between health insurance coverage and diabetes self-management and quality of care.
METHODS: Using data from the 2000 Behavioral Risk Factor Surveillance System, we analyzed the association of health insurance coverage with diabetes self-care and quality of care measures, controlling for the effects of gender, race/ethnicity, income and age.
RESULTS: Six percent of adults reported a diagnosis of diabetes (n = 11,647). Among individuals with diabetes, the majority was covered by private health insurance (38%) or Medicare (42%). Seven percent were uninsured. The uninsured reported fewer home blood glucose checks, clinic visits for diabetes, and foot examinations by a health care professional. The uninsured were more likely to report not having a dilated eye exam in the prior 2 years (OR 3.8, 95% CI 1.4, 10.0, p = 0.008). The privately insured and the uninsured reported the fewest hemoglobin A1c checks and were less likely to be on insulin. Persons who received care through the Department of Veterans Affairs (VA) were more likely to have taken a diabetes self-management class than those covered by private or public insurance, or the uninsured.
CONCLUSION: Uninsured adults with diabetes report less self-care and lower quality health care than individuals covered by private insurance, Medicare, Medicaid or the VA. There was little variation in self-care and quality of care across these types of health care coverage, with two exceptions. Individuals with private insurance reported fewer hemoglobin A1c checks and those with VA coverage were more likely to report taking a diabetes self-management class.

**EFFECT OF PHYSICIAN SPECIALTY UPON THE EARLY ADOPTION OF OSTEOPOROSIS SCREENING.** J.M. Neuner[1], R.A. Sparapani[1], P.W. Laud[1], A.B. Nattinger[1]; [1]Medical College of Wisconsin, Milwaukee, WI *(Tracking ID #50673)*

BACKGROUND: Although Medicare began payment for bone mineral density testing in 1998, little is known about current osteoporosis screening practices. We sought to determine whether either physician specialty or treatment by physicians of multiple specialties was associated with adoption of BMD screening.
METHODS: We examined outpatient claims for a cohort of women 68 years and older derived from a 5% national Medicare sample of regionally diverse cities and states. After exclusion of women with a prior osteoporosis diagnosis or BMD test, we used the AMA Physician Masterfile to determine the specialties of all physicians seen by subjects in the year prior to the July 1998 initiation of Medicare payment for BMD. We determined the percent of women who had BMD tests in the first six months of Medicare payment, and examined the effect of either a single provider specialty type 1) primary care (general internal medicine, family practice, general practice and geriatrics) 2) osteoporosis-related subspecialties (ORS) (endocrinology or rheumatology) or 3) gynecology or any combination of 2 or more of these physician types on BMD testing. We repeated analyses in a logistic regression model with adjustment for patient age, race, fracture history, Medicaid insurance, region of residence and number of provider visits.
RESULTS: Of the 36,403 women in our study cohort (median age 76, 84% white, 15% Medicaid, and 5.5% prior fracture), 84% saw PCPs, gynecologists, ORSs, or a combination of these in 1997 – 98. Overall, 3.4% of women had BMD in 7/98 – 12/98. In adjusted analyses (table), patients who saw only PCPs were less likely to receive BMD.
CONCLUSION: Patients of gynecologists, endocrinologists and rheumatologists were more likely than patients of PCPs alone to receive BMD testing in the first six months of Medicare reimbursement. It is not known whether such trends persist or whether factors such as patient selection of providers or provider knowledge or acceptance of guidelines might explain these results.

**Provider Specialty Distribution and Effect of Provider Specialty on BMD Testing**

| | % of Sample | BMD Tested | AOR | (95% CI) |
|---|---|---|---|---|
| PCP | 69% | 3.0% | – | |
| ORS | 2% | 6.3% | 2.0 | (1.4, 2.8) |
| GYN | 1% | 6.3% | 1.8 | (1.3, 2.4) |
| PCP + ORS | 3% | 6.7% | 1.9 | (1.5, 2.5) |
| PCP + GYN | 7% | 6.4% | 1.7 | (1.4, 2.1) |
| GYN + ORS | <1% | 13.1% | 3.6 | (2.1, 6.1) |
| Other | 16% | 2.7% | 0.9 | (0.8, 1.1) |

**THE ASSOCIATION BETWEEN PHYSICIAN CHARACTERISTICS AND VOLUME OF BREAST CANCER SURGERY.** J.M. Neuner[1], R.A. Sparapani[1], D. Haggstrom[1], P.W. Laud[1], A.B. Nattinger[1]; [1]Medical College of Wisconsin, Milwaukee, WI *(Tracking ID #51193)*

BACKGROUND: Physicians who perform larger numbers of some operations have been found to have better patient outcomes. We sought to determine what physician characteristics are associated with higher volume of operations for early breast cancer.
METHODS: We used data from a population-based SEER-Medicare linked data base to study female, non-HMO Medicare beneficiaries aged 65 or older who were diagnosed with stage I or II breast cancer in 1995 – 96 and underwent either breast-conserving surgery or mastectomy. We determined the operating surgeons from their Medicare part B claims, and used the AMA Physician Masterfile to determine physician age, gender, race, specialty, and type of practice (solo, group practice, medical school, etc).
RESULTS: 1501 surgeons with a median age of 49 operated on 7868 women. Only 3% of surgeons were employed by a medical school and only 2 surgeons described themselves as surgical oncologists. The median physician volume of breast cancer operations (adjusted to an annual basis) was 2 with 1st/3rd quartiles of 1.0, 4.0. 9.9% of patients were operated on by a female surgeon and 2.4% by a surgeon at a medical school. In unadjusted and adjusted Poisson regression analyses (see table), provider age between 45 and 55, female sex, specialty of general surgery (GS), and white race were associated with higher volume of breast operations (all $p < .01$)
CONCLUSION: Breast cancer surgery is highly decentralized, although female surgeons and surgeons 45 – 55 years old perform more operations than others. If higher physician volume of such surgery is shown definitively to be associated with better survival, regionalization of care could offer substantial improvements in population outcomes.

**Physician Characteristics and Volume of breast Cancer Operations**

| | | % of Sample (N = 1501) | Annual Mean Volume | P Value (Adjusted) |
|---|---|---|---|---|
| Age | <45 | 36% | 2.46 | <.01 |
| | 45 – 54 | 32% | 3.00 | |
| | ≥55 | 32% | 2.17 | |
| Sex | Male | 92% | 2.59 | <.01 |
| | Female | 8% | 3.24 | |
| Specialty | General surgery | 87% | 2.73 | <.01 |
| | GS subspclty | 6% | 2.12 | |
| | Other surgeon | <1% | 0.61 | |
| | FP/GP | 3% | 0.91 | |

**UTILIZATION OF HEALTHCARE SERVICES BY VETERANS, VETERANS' SPOUSES, AND NON-VETERANS.** P.J. Nietert[1], M.D. Silverstein[1]; [1]Medical University of South Carolina, Charleston, SC *(Tracking ID #51755)*

BACKGROUND: Veterans use Veterans Administration (VA) healthcare services in addition to the civilian (non-VA) healthcare services. We sought to examine differences in healthcare utilization among veterans, veterans' spouses, and non-veterans by analyzing the 1996 Medical Expenditure Panel Survey (MEPS), a nationally representative survey of healthcare utilization and payment for those services.
METHODS: Linear and logistic regression models were created to determine predictors of physician visits, prescriptions, emergency department visits, hospital admissions, hospital days, and healthcare expenses. The primary independent variable of interest was a classification of respondents into 1 of 4 groups: veterans who reported receiving healthcare services paid for by the VA during 1996, veterans who did not report receiving healthcare services paid for by the VA, non-veterans who were spouses of veterans, and the remaining adult population. Analyses accounted for the MEPS' complex sampling design, and all models included covariate adjustment for demographics, socioeconomic status, physical and mental health status, limitations in activities of daily living, and number of medical conditions.
RESULTS: In 1996 approximately 1/4 of veterans reported receiving healthcare services paid for by the VA, services which accounted for 15% of healthcare expenses for veterans overall. Veterans who reported using services paid for by the VA were significantly more likely than non-veterans to have had ≥1 physician visit (odds ratio [OR] = 2.8; 95% confidence interval [CI] = [1.9, 4.2]), ≥1 hospital admission (OR = 3.6; 95% CI [2.6, 4.8]), and ≥1 prescription

(OR = 4.7; 95% CI [3.0, 7.5]) and had significantly greater healthcare expenses than non-veterans. Veterans who did not report using services paid for by the VA, and veterans' spouses reported similar use of health services as the non-veteran population.
CONCLUSION: In 1996, veterans who reported receiving VA healthcare services had overall increased utilization compared to non-veterans, while veterans who did not report receiving VA healthcare services and veterans' spouses had similar utilization and healthcare expenses as non-veterans.

**A SIMPLE INTERVENTION TO IMPROVE CONTINUITY OF CARE.** L.A. Orlando[1], K.B. Desalvo[1]; [1]Tulane University, New Orleans, LA *(Tracking ID #50976)*

BACKGROUND: Continuity is an acceptable marker for quality of care in clinic populations. In our clinic, patients are assigned primary providers after a chart review by clerk allocators. Since legibility of physician signatures on clinic notes has been identified as a barrier to appropriate allocation, we studied the improvement in continuity produced by routine use of physician name stamps on clinic notes.
METHODS: Using a controlled, prospective one-year trial we evaluated the efficacy of physician name stamps on improving continuity of care at two university based medicine resident clinics. The population under study received care from residents at one of two academic medical centers, naturally dividing the patients into two groups. The clinics use the same space and ancillary staff. Both schools are issued name stamps at matriculation. One clinic served as the intervention group, while the other as the control. In the intervention group, residents were encouraged to stamp their name on the clinic note, adjacent to their signature, by clinic attending physicians. Data was abstracted from the medical record including patient, resident, and visit characteristics from the preceding year, at baseline and follow-up. 346 charts were reviewed at baseline and 296 at 1 year post-intervention. Patient characteristics included demographics and comorbid diseases. Resident characteristics included demographics, post-graduate year, and program. Visit characteristics included the day of the week seen, number of visits, "continuity year" (2 or more visits to the same physician) and "continuity visit" (2 or more sequential visits to the same physician). Additionally, we assessed the percent of notes stamped at follow-up. Our primary outcome was the change in "continuity year" (%) one year after implementation of the intervention.
RESULTS: The patient population was 85% black and 76% female with a mean age of 56. The two groups were similar at baseline and follow-up. Continuity year and continuity visit in the intervention group improved from 52% to 81% and 41% to 79% ($p < 0.001$), respectively. Continuity year and continuity visit improved in the control group from 51% to 53% and 45% to 46% ($p = 1.0$), respectively. The OR for continuity year was 3.8 [2.2 – 6.4] and for continuity visit was 4.2 [2.5 – 7.0]. Of the clinic notes reviewed at follow-up, 30% were stamped. Note stamping correlated with continuity with an OR of 22.1 [3.0 – 168] for continuity year and 5.5 [1.8 – 16.7] for continuity visit. In multivariate analyses, this relationship held true controlling for all covariates.
CONCLUSION: We found that a simple economical intervention like stamping clinic notes with the physician's name significantly improved continuity in a resident clinic. In the future we plan to continue to collect data to determine whether these improvements in continuity are linked to improvements in quality of care and to identify ways of improving adherence to the intervention.

**PATIENT E-MAIL: OPPORTUNITY OR HINDRANCE?** K.K. Patel[1], B.D. Mccarthy[2]; [1]Henry Ford Health System, Ann Arbor, MI; [2]Henry Ford Health System, Dearborn, MI *(Tracking ID #51333)*

BACKGROUND: Pt.-to-physician email (pt. email) may be useful in improving pt.-physician communication and office efficiency. However, little is known about how pts. will use this medium.
METHODS: We reviewed 298 consecutive pt. emails to the 3 primary care adult providers at the initial pilot site in Ann Arbor between 8/1/2000 to 3/31/2001. The age distribution of pt. emailers was compared to the overall adult clinic population (n = 5552). The pt. selected email categories were compared to a consecutive sample of 50 phone messages during the same time period (note that appointment requests by phone did not generate a message). Pt. email messages were also rated by the 2 authors and placed in 1 of 4 appropriateness categories.
RESULTS: See tables below:

| Appropriateness Ratings of Pt. Emails | 95% CI |
|---|---|
| Appropriate (replaced a phone contact) | 94.8% (91.4 – 96.9) |
| Probably appropriate (prob. replaced a phone contact) | 5.2% (3.1 – 8.6) |
| Inappropriate Urgent (should be phone or ER contact) | 0.0% (0 – 1.2) |
| Inappropriate Non-urgent (should not have resulted in call) | 0.0% (0 – 1.2) |

CONCLUSION: In this population, there was no age differential in pts. emailing and the clinic population, suggesting that older pts. can adopt this technology. Approximately 2/3 of email messages (those for refills, test results, referrals) clearly replaced phone contacts. Furthermore 95% or more of email contacts would probably have resulted in phone contacts if email was not available. The implementation of pt. email did not appear to result in a large number of inappropriate contacts.

**Age Distribution Pt. E-mailers Compared to Clinic Population (p = ns)**

| | 16 – 30 | 31 – 40 | 41 – 50 | 51 – 60 | >60 |
|---|---|---|---|---|---|
| Pt. E-mailers | 29% | 26% | 24% | 12% | 8% |
| Clinic Pt. Population | 28% | 25% | 21% | 12% | 8% |

**Comparison of E-mail and Phone Message Types**

| | Refills | Test Results | Referrals | Physician/Other |
|---|---|---|---|---|
| E-mail types | 30% | 28% | 10% | 32% |
| Phone Message types | 45% | 15% | 25% | 15% |

**POOR DOCUMENTATION OF OVER-THE-COUNTER ANALGESIC USE BY INTERNAL MEDICINE RESIDENTS.** L. Pavlosek[1], C.T. Grimm[1]; [1]St. Vincent's Medical Center, Bridgeport, CT *(Tracking ID #51329)*

BACKGROUND: Physicians rarely document over-the-counter (OTC) medication use. OTC non-steroidal anti-inflammatory drugs (NSAIDs) have been associated with serious medical complications. We studied resident physician documentation of OTC NSAID use in an inner city clinic.
METHODS: We surveyed a convenience sample of adult patients coming to the clinic over a one month period. The six-question instrument asked about demographics, medical conditions, and OTC NSAID use. Patient charts were reviewed for medical history and documentation of OTC NSAID use.
RESULTS: 440 patients visited the clinic during the study period. 56 were excluded, leaving 384 participants. As shown in the table, over half the patients used OTC NSAIDs, but this use was documented less than a quarter of the time. Many patients had contraindications to NSAID use, ranging from hypertension (48%) to peptic ulcer disease (13%). Presence of complications did not improve documentation. Residents were more likely to document OTC NSAID use when it was frequent, and when they prescribed NSAIDs. Even then, however, OTC NSAID use was documented less than half the time.
CONCLUSION: OTC NSAID use is common in this inner city population. Resident documentation of OTC NSAID use, however, is abysmal, even among patients at high risk for complications.

| | n (%) | OTC NSAIDs Used | OTC NSAIDs Documented |
|---|---|---|---|
| Participants | 384 (87%) | 238 (62%) | 55 (23%) |
| Contra-indications | 209 (54%) | 128 (61%) | 28 (22%) |
| Age > 65 | 43 (11%) | 24 (56%) | 6 (25%) |
| NSAIDs prescribed | 80 (21%) | 39 (49%) | 16 (41%) |
| Daily use of OTC NSAIDs | 57 (15%) | na | 27 (47%) |

**NON-SELECTIVE USE OF SELECTIVE CYCLOOXYGENASE INHIBITORS.** L. Pavlosek[1], C.T. Grimm[1]; [1]St. Vincent''s Medical Center, Bridgeport, CT *(Tracking ID #51336)*

BACKGROUND: Cyclooxygenase-2 selective (cox-2) inhibitors are the best sellers of the prescription non-steroidal anti-inflammatory drug (NSAID) market. Cox-2 inhibitors have a lower incidence of gastrointestinal (GI) side effects than non-selective NSAIDs, but do not cause less hypertension, renal failure, or fluid retention. They are not more effective analgesics than their non-selective cousins. Given the limited improvement in safety, the extent of cox-2 use is puzzling. It is possible that cox-2 inhibitors are not reserved for patients at high risk for NSAID-induced complications. We studied how internal medicine residents in an inner-city clinic prescribe NSAIDs.
METHODS: We studied a convenience sample of adult patients coming to the clinic during a one month period. Patients answered a six question survey on demographics, medical conditions, and NSAID use, and their charts were reviewed for medical history and medications prescribed.
RESULTS: 440 patients visited the clinic during the study period. 24 patients were unable to complete the survey, and 32 refused, leaving 384 participants. Residents prescribed NSAIDs to 80 patients. For this analysis, we excluded 22 patients placed on aspirin for cardioprotection, leaving 58 patients prescribed NSAIDs for analgesia. Residents gave cox-2 inhibitors to 20 patients (34%). Older patients were more likely to receive cox-2 inhibitors; 55% of patients over 54 were prescribed cox-2 inhibitors compared with 24% of younger patients ($p < .02$). However, after controlling for age, patients with other contraindications to NSAID use were no more likely to get cox-2 inhibitors than patients at average risk. Ten patients with GI contraindications recorded in the chart were prescribed NSAIDs. Only two received cox-2 inhibitors. 48 patients with no GI contraindications were prescribed NSAIDs. 18 (38%) received cox-2 inhibitors.
CONCLUSION: Residents prescribed cox-2 inhibitors to more than a third of the patients they saw in this inner-city clinic. They did not limit or even target these drugs to patients with contraindications to non-selective NSAIDs. If physicians in practice also prescribe cox-2 inhibitors to low-risk patients, it may in part explain why these drugs are so widely used.

**DIFFERENCES IN DIABETES-RELATED AMBULATORY PREVENTIVE CARE AMONG ADULTS IN THE UNITED STATES.** S.D. Persell[1], A.M. Zaslavsky[2], J.S. Weissman[3], J.Z. Ayanian[1]; [1]Division of General Medicine, Brigham and Women's Hospital, Boston, MA; [2]Dept of Health Care Policy, Harvard Medical School, Boston, MA; [3]Institute for Health Policy, Massachusetts General Hospital, Boston, MA *(Tracking ID #50512)*

BACKGROUND: Ambulatory preventive services are strongly recommended for adults with diabetes mellitus. Identifying groups at high risk for not receiving services may help target prevention efforts. We used recent national data to assess the use of diabetes-related ambulatory preventive care by age, race/ethnicity, and health insurance status.
METHODS: We analyzed 6565 adults with diabetes in 37 states who responded to a random household telephone survey, the 1999 Behavioral Risk Factor Surveillance System. We determined the unadjusted and adjusted proportions of participants who reported receiving eight diabetes-related ambulatory preventive services (office visits for diabetes; blood pressure, cholesterol, and glycosylated hemoglobin testing; foot and dilated eye examinations; pneumococcal and influenza vaccinations), or who could not see a physician when needed due to cost. We used logistic regression to compare groups after adjusting for sex, health status, insulin use, diabetes duration, hypertension, hypercholesterolemia, income and education.
RESULTS: Adults age 18 – 44 were 8.9 to 38.9% less likely than adults 65 – 74 to report receiving 7 of the 8 diabetes-related preventive services we examined. After adjustment these differences decreased only slightly (absolute adjusted differences: 7.5 to 36.3%, $P < 0.02$).

Glycosylated hemoglobin testing was the exception, and was reported more often by younger adults (P < 0.001). African-Americans and Hispanics were less likely than non-Hispanic whites to report receiving pneumoccocal vaccines (absolute adjusted rates 29.9%, 27.6%, 40.5%, respectively, P < 0.01). African-Americans and Hispanics reported slightly less use of several other services, but after adjusting for socioeconomic and clinical factors these differences diminished. African-Americans and Hispanics were more likely than whites to report not seeing a doctor when needed due to cost (absolute adjusted rates 14.8%, 15.4% and 11.0%, respectively, P < 0.05). Uninsured adults were 10.1 to 28% less likely than insured adults to report receiving the services we examined (P < 0.01). After adjustment these differences were significant for 5 of 8 preventive services (P < 0.05). Uninsured adults were four-fold more likely to report not seeing a doctor when needed because of cost compared to insured adults (48.2% and 11.3%, respectively, P < 0.001).
CONCLUSION: Young and uninsured adults were less likely than older and insured adults, respectively, to report use of many diabetes-related preventive services, even after adjusting for socioeconomic and clinical factors. African-Americans and Hispanics were less likely to receive pneumococcal vaccines. Enhancing care of young adults and expanding insurance coverage may improve outcomes for adults with diabetes.

### CONSEQUENCES OF REGIONALIZING INVASIVE CARDIAC PROCEDURE TECHNOLOGY.

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BACKGROUND: To compare use of clinically necessary angiography in VA, an integrated health care system with regionalized cardiac procedure services, to traditional fee-for-service (FFS) care under Medicare financing.
METHODS: We used clinical data collected from chart review from two cohorts. The first was a national random sample of 1,665 male veterans age ≥ 65 discharged from 81 VA hospitals with the primary diagnosis of acute myocardial infarction (AMI). The second cohort was 19,305 males age ≥ 65 discharged with AMI from 1,530 non-VA hospitals under FFS Medicare financing. We studied those eligible for angiography more than 12 hours after admission but prior to discharge. We compared use of angiography, and 1- and 3-year mortality among all patients and those rated clinically necessary for angiography using published criteria. We used logistic regression to control for patient characteristics and admitting hospital characteristics. We also matched patients using a propensity score approach to determine whether, given equivalent availability of cardiac procedure services and patient characteristics, patients treated within the VA were less likely than patients treated within FFS to receive angiography.
RESULTS: VA patients were more likely than Medicare patients to have a history of hypertension (67.0% vs. 58.2%, respectively), emphysema (30.1% vs. 22.5%), diabetes (36.3% vs. 29.0%), or prior MI (37.4% vs. 33.2%), and more likely to meet criteria for clinically necessary angiography prior to hospital discharge (66.3% vs. 54.2%). Fewer VA patients were initially admitted to hospitals with onsite availability of cardiac surgery (26.3% vs. 47.3%) (all P < 0.001). After controlling for clinical need for angiography using the American College of Cardiology/American Heart Association (ACC/AHA) guideline and age, VA patients were less likely than Medicare patients to undergo it (43.9% vs. 60.0%; P = 0.001). In a logistic model controlling for patient characteristics alone, VA patients remained less likely to undergo clinically needed angiography (OR for VA patient undergoing angiography relative to Medicare patient 0.76 [95% CI 0.66,0.88]). When the model was refitted with the addition of admitting hospital availability of cardiac procedures, VA patients were as likely as Medicare patients to undergo angiography (OR 1.04 [0.89,1.20]). Using a propensity score approach, our angiography findings did not change. We found no differences in 1-year (P = 0.74) or 3-year mortality (P = 0.96). Our findings did not change when we used RAND appropriateness ratings to judge clinical need for angiography.
CONCLUSION: These findings suggest that practice pattern differences in use of needed angiography are being driven more by availability of cardiac procedure technology as a consequence of regionalization, than by patient characteristics. Access to needed angiography may be improved by changing the distribution of invasive cardiac procedure technology.

### PATIENTS AND CAREGIVERS SATISFACTION IN A HOSPITAL AT HOME PROJECT: IN SEARCH OF DETERMINANTS.

I. Peytremann Bridevaux[1], N. Chavaz Cirilli[1], B. Santos-Eggimann[1]; [1]University Institute of Social and Preventive Medicine, Lausanne, Switzerland *(Tracking ID #50137)*

BACKGROUND: In the context of economic pressure and of increased demand for acute hospital beds, hospital at home can be considered as a possible alternative to inpatient hospital care. It is generally accepted that health outcomes show similar results. Economic evaluations, on the other hand, reveal opposing conclusions. Patient and caregiver satisfaction has been consistently rated throughout the studies, but little is known about factors associated with satisfaction. On July 1st, 1997 in the canton of Vaud, Switzerland, a pilot experiment was set up for a two-year period. We measured patients and caregivers satisfaction in order to determine if there were any existing factors predicting satisfaction.
METHODS: Highly selected and consenting patients were recruited from 4 different hospitals. Patients and caregivers satisfaction were defined separately, by composite questions on satisfaction. An univariate analysis was first performed to determine the factors associated with satisfaction. A multivariate analysis was then performed using a backward stepwise logistic regression.
RESULTS: 115 patients were recruited with the following main diagnosis or treatments: 52 community-acquired pneumonias, 32 iv-antibiotic therapies, 18 heart failures and 13 sciaticas or chronic leg ulcers. Ages ranged from 16 to 95 (mean 64.6) for patients and from 16 to 89 (mean 58.2) for caregivers. Most patients suffered from one or more comorbid conditions. According to our definition of patient global satisfaction, 60.6% were considered fully satisfied and 39.4% less than fully satisfied. The only variable which could be associated with patient satisfaction was age. According to our definition of caregiver global satisfaction, 81.9% were reported fully satisfied. The caregiver's subjective state of health, the dichotomized Charlson's index of patient's comorbidity and the caregiver's additional obligations were predictors of the outcome when combined together.
CONCLUSION: When carefully selected and consenting, patients and caregivers are satisfied with hospital at home. So as to justify the continuation or broader implementation of hospital at home programs, patients and caregivers satisfaction of a service which can result in similar health outcomes with decreased or neutral costs, should be considered. However it might be wise to limit hospital at home to specific patients and caregivers: older patients with few comorbid conditions and caregivers in good subjective state of health and without many additional obligations. The results of this study may be generalized with consideration to the limitations of a small sample size, and of a selected patient population who benefit from the Swiss health care system.

### DOES AUGMENTING PATIENT EDUCATION IN CHRONIC KIDNEY DISEASE MANAGEMENT IMPROVE PATIENT RATINGS OF CARE?

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BACKGROUND: Each year ~80,000 U.S. chronic kidney disease (CKD) patients must select a dialysis therapy, intensive treatment that requires patient understanding of complex risks and benefits. Dialysis facilities, which are under capitated Medicare reimbursement, may be reluctant to augment patient education by involving providers with other relevant expertise (e.g. social workers, educators) in addition to clinicians (i.e., physicians, nurses). We assessed whether the process of augmenting patient education was associated with the outcome of higher patient ratings of care.
METHODS: We performed a cross-sectional analysis of 898 CKD patients incident to dialysis enrolled in a national cohort study at 70 U.S. facilities. We surveyed facilities on processes-of-care and structural characteristics. We used logistic regression to assess the association between facility augmentation of staff for patient education, and three patient rating outcomes measured on a 5-point scale (ratings of amount of information given about dialysis; information on choosing hemodialysis (HD) vs. peritoneal dialysis (PD); and overall quality of care), while controlling for demographic factors and facility characteristics.
RESULTS: The percentage of patients at facilities with augmented educators who gave excellent ratings was approximately 25% higher than that among patients at facilities with only clinical staff educators for specific ratings (45.6% vs. 33.9%, for amount information on dialysis and 43.8% vs. 34.0% for information on HD vs. PD, respectively), but was similar for overall ratings of dialysis care(65.2% vs. 61.3%). In separate multivariable analyses adjusting for potential confounders, the odds of excellent ratings were 40–50% greater for patients at facilities augmenting educators than at facilities using simply clinical staff for both information-specific ratings (OR 1.43, 95%CI 1.02–2.02 for amount information on dialysis, OR 1.50, 95%CI 0.99–2.28 for information on HD vs. PD), but not for overall quality ratings (OR 1.04, 95%CI 0.77–1.39), despite correlation between information-specific and overall quality ratings. Augmenting education was associated with greater improvement in ratings of amount of information on dialysis and information on HD vs. PD, among PD patients (OR's 2.00 & 2.78, respectively) than among HD patients (OR's 1.40 & 1.58, respectively), although the interaction was not statistically significant.
CONCLUSION: The process of augmenting education beyond clinical staff at the start of dialysis therapy is associated with higher patient ratings outcomes for information processes of care, but not overall patient-rated quality of care. PD patients, who perform their own dialysis at home, may derive greater benefits from patient care educators with different expertise than clinical staff.

### HOW ARE ERRORS ATTRIBUTED IN MORBIDITY AND MORTALITY CONFERENCES?

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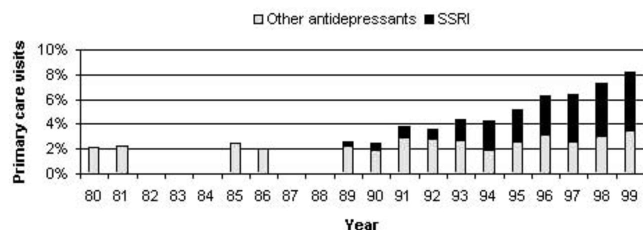
BACKGROUND: Historically, the Morbidity and Mortality (MM) Conference has been the only conference in residency education where adverse events (AE) and errors are discussed with a goal to improve patient care. However, little is known about how errors are attributed there. Our goal was to determine how errors are attributed at the MM conference in departments of surgery and medicine.
METHODS: Trained physician reviewers (raters) using structured implicit review rated the case presentations at MM conferences of departments of surgery and medicine at four academic hospitals over 8 months. Case presentations were assessed for the presence of an error that resulted in an adverse event. They determined whether the error was attributable to a specific cause-either an individual, team, system, or some combination of these-and whether the conference discussants also assigned causality.
RESULTS: Reviewers rated 332 case presentations (100 medicine, 232 surgery), identifying 23 errors resulting in AEs in medicine conference and 114 errors resulting in AEs in surgery conference. Medicine reviewers attributed 65% (15/23) of errors to a specific cause while discussants attributed 35% (8/23) of errors to a specific cause (p = 0.04 for diff between medicine reviewers and discussants). Surgery conference reviewers attributed 98% (112/114) of errors to a specific cause, while discussants atttributed 77% (88/114, p < 0.001 for diff between surgery reviewers and discussants). The difference between medicine and surgery reviewers in assigning a specific cause, 65% vs. 98%, was significant (p = 0.001), as was the difference between medicine discussants and surgery discussants, 35% vs 77% (p = 0.001). For both conferences, whenever discussants attributed an error, the reviewer did so as well. Among the 8 errors attributed by both discussants and reviewers in medicine, reviewers were more likely, 88% (7/8) vs. 50% (4/8) to make an attribution, but differences were not statistically significant (p = 0.11). Among the 88 errors in surgery where both reviewers and discussants attributed an error to a specific cause, reviewers attributed the error to a team more often than did discussants (74% vs. 51%, p = 0.002). In both conferences, individual and system attributions were similar for the trained reviewers and the conference discussants.
CONCLUSION: In medicine MM conferences, both reviewers and discussants attribute errors to a specific cause less frequently than surgery MM conference reviewers and discussants. Trained reviewers attending surgery MM conferences are more likely than conference participants to assign the cause of an error to a team.

**OVERUSE OF PROTHROMBIN AND PARTIAL THROMBOPLASTIN COAGULATION TESTS IN MEDICAL INPATIENTS.** F.H. Pilsczek[1], W.D. Rifkin[2], S. Walerstein[1]; [1]Nassau University Medical Center, East Meadow, NY; [2]Maimonides Medical Center, Brooklyn, NY *(Tracking ID #50553)*

BACKGROUND: Prothrombin time (PT) is a blood coagulation test used to measure the effect of warfarin while the partial thromboplastin time (PTT) measures the therapeutic effect of unfractionated heparin. Low molecular-weight heparin (LMWH) does not routinely require monitoring of anticoagulation with either PT or PTT. We collected data on the frequency of simultaneous PT and PTT requests, where only one or neither is indicated, and to estimate the potential cost-savings possible.
METHODS: At a teaching tertiary care center, we employed a convenience sample of medical inpatients from January to February 2001. General inpatient charts were reviewed randomly until 50 patients had been collected. Physician's orders were reviewed to determine what medications were prescribed. Patients prescribed warfarin alone, IV Heparin alone or LMWH alone were selected. We then determined which coagulation tests were performed each day for these patients by review of their computerized lab results. We followed each patient until discharge or the ordering both tests became indicated, such as when warfarin was added to IV heparin. Costs of lab tests were obtained from our hospital laboratory.
RESULTS: PT and PTT coagulation tests were requested together in every instance. Seventeen patients on only LMWH had 30 sets of PT/PTT performed (60 tests). Four patients on LMWH and warfarin had 25 PTT's performed. 17 patients on IV heparin had 87 PT's performed. Twelve patients on warfarin had 60 PTT's performed. In total 232 unneeded PT or PTT's were ordered in these 50 patients, or 4.6 per patient during their hospitalization. In terms of cost, each PT was \$8.69 and each PTT \$12.32. Therefore the 17 patients on LMWH had \$630.30 in unneeded lab work, or \$37.07 each. The four LMWH and Warfarin patients had \$308 in excess lab costs, or \$77 each. The 17 patients on IV heparin had \$756.03 in extra costs, or \$44.47 each. Finally, the 12 patients on Warfarin had \$739.20 in unneeded tests, or \$61.60 each. In total, these 50 patients incurred \$2,433.53 in unneeded costs, or \$48.67 each during their hospital stay.
CONCLUSION: Our examination found that PT and PTT were invariably requested together, although this was not necessary, as patients on medications requiring simultaneous PT and PTT monitoring were excluded. While it was not possible to determine the clinicians rationale for their test ordering we suspect that both tests were ordered together reflexively. Beyond evaluating the expense of various tests, review of appropriate indications may be helpful. Future research may focus on which clinical team member is requesting unneeded tests and whether specific educational interventions, pre-printed order forms or computerized order-entry would reduce wasteful practices.

**NATIONAL TRENDS IN DEPRESSION DIAGNOSIS AND ANTIDEPRESSANT USE IN PRIMARY CARE.** P.A. Pirraglia[1], R.S. Stafford[2], D.E. Singer[1]; [1]Massachusetts General Hospital, Boston, MA; [2]Stanford Center for Research in Disease Prevention, Palo Alto, CA *(Tracking ID #47069)*

BACKGROUND: The introduction of selective serotonin reuptake inhibitors (SSRI) in 1988 represented a breakthrough in depression treatment, due to their safety and ease of use. We examined trends in primary care depression diagnosis and antidepressant use over 20 years.
METHODS: The National Ambulatory Medical Care Survey is a national probability survey of outpatient practices. It can be used to examine ambulatory care trends on a national level from a cross-sectional standpoint. We analyzed 135435 adult primary care visits between 1980 and 1999. Statistical weighting was applied to account for sampling design and to generate national estimates. We examined the effect of year on depression diagnosis and antidepressant use with chi-squared tests for trend.
RESULTS: Depression diagnosis increased from 5 million visits (2.2% of primary care visits) in 1980 to 9 million (3.2%) in 1999 ($p < 0.001$). The presence of antidepressant use increased from 5 million visits (2.1%) in 1980 to 21 million (7.8%) in 1999 ($p < 0.001$). This was due almost entirely to SSRIs, which increased from reported use in 1 million visits (0.4%) in 1989 to 13 million (4.7%) in 1999 ($p < 0.001$).




CONCLUSION: The prevalences of both depression diagnosis and antidepressant use in adult primary care have dramatically risen over 20 years. These changes were associated with the expansion in use of SSRIs.

**AN APPARENT INCREASE IN MORTALITY IN PATIENTS TREATED FOR ALCOHOL WITHDRAWAL FOLLOWING AN EDUCATIONAL CAMPAIGN.** M.J. Pletcher[1], A. Fernandez[1], T.A. May[2], J.R. Westphal[3], C.A. Gamez[3], D.F. Hersh[3], R. Gonzalez[1]; [1]Division of General Internal Medicine, UCSF, San Francisco, CA; [2]Dept. of Family and Community Medicine, UCSF, San Francisco, CA; [3]Dept. of Psychiatry, UCSF, San Francisco, CA *(Tracking ID #51232)*

BACKGROUND: Significant variation exists in the treatment and outcomes of patients with alcohol withdrawal. To address this variation, guidelines for treatment of withdrawal at our urban public hospital were updated to include individualized benzodiazepine (BDZ) therapy triggered by nursing assessment using a validated withdrawal severity scale, in addition to a pre-existing around-the-clock BDZ regimen for prophylaxis and maintenance. Starting in July 2000, an educational campaign promoting these guidelines, along with general tenets of withdrawal treatment, targeted nurses and housestaff.
METHODS: We retrospectively compared the length of stay and mortality of patients discharged during the 12 months before, and the 12 months after, the educational campaign began. An administrative database was used to identify all patients labeled with the ICD-9 code for alcohol withdrawal (291) upon discharge. Using logistic regression models, we adjusted for age, gender, ethnicity, homelessness, and comorbid conditions (using the Charlson comorbidity index). Charts from the subset of patients who died during their hospitalization were reviewed.
RESULTS: The 266 pre- and 270 post-campaign patients were similar in age (mean 47.1), gender (86% male), homelessness (40%), and Charlson comorbidity index (median 0); more Latinos (29 vs. 20%) and fewer African-Americans (16 vs. 23%) were discharged post-campaign. Median length of stay was 1 day longer post-campaign (5 vs. 4, $p = 0.10$). Ten persons died post-campaign, and one person pre-campaign (RR = 9.85, 95% CI: 1.27 – 76.4, $p < 0.01$). After adjustment, the effect remained (OR = 10.38, 95% CI: 1.23 – 87.7, $p = 0.03$). Chart review of the 11 in-hospital deaths revealed 3 patients inappropriately coded, leaving 0 deaths pre- and 8 deaths post-campaign ($p < 0.01$). Five of the remaining 8 patients died of hepatic failure and progressive coma; three of these patients were receiving prophylactic around-the-clock BDZ therapy without documented signs of withdrawal. One patient died from an aspiration event while receiving continuous lorazepam infusion therapy. Analysis of a random sample of hospital discharges during the same period showed no significant analogous secular trend in mortality or length of stay.
CONCLUSION: The apparent increase in mortality among patients treated for alcohol withdrawal after this educational campaign may be the result of secular trends in disease severity, or an artifact of altered coding practice in this retrospective study. However, a deleterious alteration in alcohol withdrawal treatment patterns cannot be ruled out. Further retrospective investigation, especially among patients with hepatic dysfunction, and randomized studies of various aspects of our guidelines are indicated.

**RISK FACTORS FOR PRESCRIBING ERRORS IN PRIMARY CARE PRACTICES: A MULITVARIATE ANALYSIS.** E.G. Poon[1], T.K. Gandhi[1], S.N. Weingart[2], E. Burdick[1], J.F. Peterson[1], L.L. Leape[3], D.W. Bates[1]; [1]Brigham and Women's Hospital, Boston, MA; [2]Beth Israel Deaconess Medical Center, Boston, MA; [3]Harvard University, Boston, MA *(Tracking ID #50295)*

BACKGROUND: Medication prescribing errors are common. Our group previously has shown that primary care practices that utilize computerized prescription writing have lower rates of prescribing errors. We sought to identify other risk factors that could suggest further strategies for reducing prescribing errors.
METHODS: We prospectively studied medication prescriptions written by 28 internists at 4 internal medicine clinics, each over a 4-week period. A pharmacist initially screened all prescriptions for errors, and 2 independent physicians confirmed the presence and rated the severity of errors. Patient data were collected with chart reviews and patient surveys. We then performed a Poisson multivariate analysis using the number of prescribing errors per patient as the outcome variable. We also adjusted for clustering at the physician level using generalized estimating equations (GEE).
RESULTS: Of 1496 prescriptions screened by the pharmacist from 943 patients, we obtained patient and physician data on 637 patients. Within this group of 637 patients, 79 patients (12%) received at least one prescription with a medication error (ME), and 52 patients (8%) received at least one prescription with a medication error that had the potential to cause an Adverse Drug Event (ADE). On average, there were 0.15 MEs per patient and 0.086 potential ADEs per patient. We then examined the relationship between prescribing errors and patient characteristics, including age, gender, number of active medications, history of hospital admissions, clinic and emergency room visits. In examining these relationships, we controlled for practice level factors including the use of computerized prescription writing and clinic site, physician level factors including years in practice, and patient level factors including the number of prescriptions screened. In a Poisson multivariate model, we found that patients with fewer than 2 primary care physician (PCP) visits over the preceding 3 months were more likely to receive a prescription containing an ME or a potential ADE. (ME: adjusted rate ratio [aRR] = 1.74, 95% CI = 1.08 – 2.81, $p = 0.022$; potential ADE: aRR = 1.78, 95% CI = 1.07 – 2.96, $p = 0.026$). We also found that patients taking a higher number of medications were more likely to receive a prescription containing an ME (aRR = 1.09 per extra medication, 95% CI = 1.03 – 1.16, $p = 0.002$).
CONCLUSION: Patients who visited their PCPs less frequently and patients who took more medications were more likely to receive a prescription containing an error at a subsequent clinic visit. This suggests that medically complex patients who are less familiar to their PCPs are at increased risk. Improving communication between these patients and their PCPs may reduce medication prescribing errors.

**ASSOCIATION OF INSURANCE TYPE AND ANXIETY SYMPTOMATOLOGY TO GLOBAL MEDICAL ADHERENCE AMONG PRIMARY CARE PATIENTS WITH ANXIETY DISORDERS.** E.P. Post[1], A. Kilbourne[1], B. Herbeck Belnap[1], B.L. Rollman[1]; [1]University of Pittsburgh, Pittsburgh, PA *(Tracking ID #52429)*

BACKGROUND: Insurance type and mental health disorders can affect service use. However, few studies have explored the relationship of organizational and financial factors to medical adherence, and most studies limit analysis to medication compliance. We examined the association of insurance and anxiety symptomatology to global adherence using data collected from a trial to improve the quality of treatment for primary care patients with anxiety disorders.
METHODS: Baseline demographic, clinical and insurance data were collected on 123 primary care patients aged 18 – 64 diagnosed with panic and/or generalized anxiety disorder by the PRIME-MD. We categorized insurance plan type along a continuum of financial restrictiveness [percent of sample]: uninsured [2%]; health maintenance organization (HMO) [35%]; point of service plan (POS) [25%]; indemnity/preferred provider organization [23%]; and public insurance (Medicaid) [15%]. Self-reported global adherence was measured with

three Likert-scale questions: (1) *degree* of adherence to doctor's suggestions; (2) *lack of difficulty* with adherence; (3) *frequency of ease* with adherence. Responses were dichotomized into perfect and imperfect adherence for use in logistic regression. Anxiety symptomatology was measured with the Hamilton Rating Scale for Anxiety.
RESULTS: Perfect adherence ranged from 49 to 59% across the three measures. Global medical adherence differed significantly by insurance type for all measures (each p < 0.04 for Fisher's exact test). Compared to public insurance, POS membership was associated with less *difficulty* in adherence (p < 0.04), and HMO membership with less *ease* (p < 0.05) and a lower *degree* (p < 0.01) of adherence. Increased anxiety levels trended towards a significant association with perfect adherence (p < 0.09) in bivariate analysis. When controlling for anxiety symptomatology, insurance type remained associated with *degree* of adherence (p < 0.05) but not with *lack of difficulty* nor with *ease* of adherence. Adding age and gender into the multivariate models did not change the outcomes.
CONCLUSION: Insurance type is associated with global medical adherence, but the association persists only for *degree* of adherence after controlling for anxiety severity. Future work is needed to examine the impact of insurance plan type on treatment and recovery of primary care patients with anxiety disorders, and to replicate these analyses with other measures of adherence such as chart review data.

**POSITIVE PPD TEST IN HEALTH-CARE WORKERS (HCW): A STUDY OF THE COMPLIANCE OF ANTIBIOTIC PROPHYLAXIS.** P. Radhakrishnan[1], V. Lingegowda[1], V. Molagavalli[1], W. Zouras[1], F.A. Zar[1]; [1]Saint Francis Hospital, Evanston, IL *(Tracking ID #50734)*

BACKGROUND: HCW have higher rates of exposure to tuberculosis (TB).The CDC recommends INH prophylaxis for latent TB(PPD +ve patients without active disease). The purpose of this study was to determine the incidence of, identify risk factors for PPD positivity and assess compliance with INH prophylaxis for treatment of latent TB among HCW. We present the initial results of the study.
METHODS: Setting: St. Francis Hospital, a 320 bed community hospital with a significant immigrant HCW population. Design: A survey questionnaire was administered to hospital employees. Data collected included profession, country of birth, PPD test status on hire, details of exposure to TB, and compliance with INH prophylaxis. An immigrant HCW was defined as one who was born and/or trained outside the US. Fishers' exact test and t-test were used; a two tailed p < 0.05 was considered significant.
RESULTS: The 85 participants included 47 doctors, 24 nurses and the rest non-medical staff.The mean age was 35;±10.5, 50 were females, 56 (66%) were immigrants. Thirty eight (45%) were PPD positive. PPD positivity was significantly associated with immigrant status (p = 0.000), fewer years spent in the US [12 vs 23 years (p = 0.003)].
Doctors were more likely to be PPD positive, compared to other hospital personnel (p = 0.04). Only 16 (42%) PPD positive HCW were offered INH prophylaxis [10 cases (26%) by employee health services (EHS) and 4 by primary doctor]. One HCW, a doctor, was not offered INH by EHS, but opted to take it. Of those offered INH, only 7 (44%) complied. The reasons for non-compliance ranged from concerns about side-effect to misplaced confidence and denial of risks inherent to PPD positivity.
CONCLUSION: 1. There is a higher prevalence of PPD positivity among immigrant HCW. 2. The counselling of PPD positive HCW by EHS needs to be intensified in order to ensure compliance with the recommendations for treatment of latent TB infection. 3. Further subjects need to be studied to study the effect of education, profession and nationality on the acceptance or refusal of INH prophylaxis.

**WHY DOES A VALIDATED DECISION RULE NOT PERFORM AS EXPECTED IN ACTUAL CLINICAL PRACTICE?** B.M. Reilly[1], A.T. Evans[1], J.J. Schaider[1], K. Das[1], J.E. Calvin[1]; [1]Cook County Hospital and Rush Medical College, Chicago, IL *(Tracking ID #52424)*

BACKGROUND: Various reasons have been proposed to explain why validated clinical decision rules may not perform as expected when used in clinical practice, but there are scant published data that address the question.
METHODS: After Goldman and colleagues' decision rule (DR) was adopted as our institution's standard of care for patients admitted from the emergency department with suspected acute cardiac ischemia, we measured the outcomes for 1008 consecutive eligible patients. We compared the observed safety and efficiency of physicians' actual admission decisions with the expected safety and efficiency if physicians had strictly adhered to DR recommendations. Safety was defined as the proportion of patients suffering complications who were admitted to the CCU or inpatient telemetry unit. Efficiency was the proportion of patients not suffering complications who were not admitted to CCU or telemetry (but instead admitted to the emergency department observation unit [OBS]). To understand differences between observed and expected safety and efficiency, we analyzed the impact of 3 explanatory factors: physicians do not use the DR; physicians use the DR but overrule the DR recommendations; and patients' co-morbidities or institutional barriers prevent physicians from implementing DR recommendations.
RESULTS: Overall, physicians' observed decisions (n = 1008) were as safe (0.94 vs. 0.89; P = 0.7) but less efficient (0.36 vs. 0.48; P < 0.001) than decisions recommended by the DR. Physicians did not use the DR in 176 patients (17%); their decisions in these patients were less efficient (0.27) than among patients in whom they used the DR (0.38; P = 0.01). Physicians used the DR in 832 patients but chose to overrule its recommendation in 48% (n = 390). Physicians' decisions were less efficient when they used and overruled the DR (0.19 [73/378]) compared to when they used the DR and adhered to its recommendations (0.54 [230/423]; P < 0.001). Physicians' overrule decisions remained less efficient (0.23 [73/315]; P < 0.001) after excluding patients with co-morbidities that made OBS admission inappropriate (n = 59) and after excluding patients for whom OBS beds were unavailable (n = 4).
CONCLUSION: When the validated clinical decision rule served as the standard of care, the observed efficiency of admission decisions was inferior to their expected efficiency largely because physicians chose to overrule the DR recommendations. Neither patient co-morbidities nor limited access to observation unit beds explained these differences.

**EPISODES OF PANIC AND GENERALIZED ANXIETY DISORDER (PD/GAD) DETECTED BY THE PRIME-MD: HOW SYMPTOMATIC ARE THESE EPISODES AND DO PCPS AGREE WITH THIS SCREENING TOOL?** B.L. Rollman[1], B. Herbeck Belnap[1], W.P. Gardner[1], B.H. Hanusa[1], K. Shear[1]; [1]University of Pittsburgh, Pittsburgh, PA *(Tracking ID #50643)*

BACKGROUND: Anxiety disorders are prevalent in primary care practice, associated with excess use of health services, and often not recognized and treated by PCPs. The PRIME-MD can generate a diagnosis of PD/GAD. However, the severity of anxiety symptomatology among cases of PD/GAD identified by the PRIME-MD and frequency of PCP agreement with this instrument is unknown. We examined these questions using data collected as part of a clinical trial to improve primary care for PD/GAD.
METHODS: We distributed the self-administered Patient Questionnaire (PQ) portion of the PRIME-MD to patients at 4 primary care clinics. If the patient screened positive for an anxiety disorder on the PQ, met preliminary study eligibility criteria, and provided informed consent, a research assistant administered the PRIME-MD Anxiety Module. If the patient met criteria for PD or GAD on the Anxiety Module, his/her PCP was informed via an electronic medical record system. The PCP then electronically indicated his/her agreement with the diagnosis. Later, we assessed level of anxiety symptomatology over the telephone using the Hamilton Rating Scale Score for Anxiety (HRS-A) and the Panic Disorder Severity Scale (PDSS).
RESULTS: Between 7/00 and 9/01, 4,908 patients aged 18–64 completed the PQ and 2,135 (44%) screened positive for an anxiety disorder. Of these, 839 (39%) met preliminary study eligibility and consented to the Anxiety Module interview. Later, 22% were diagnosed with GAD, 7% with PD, 15% with both PD and GAD, and 55% had no diagnosable anxiety disorder. Of the 377 patients with PD and/or GAD, 234 (63%) were protocol-eligible and completed our baseline assessment (121 GAD, 37 PD, and 76 PD/GAD). Their mean age was 42.9 (range 19–63), 75% were female, and 93% Caucasian; these characteristics did not differ by type of anxiety disorder. Patients with both PD and GAD had a higher mean HRS-A score than those with PD or GAD alone (18.0 vs. 11.9 and 13.0, respectively; p = 0.0001). PD patients scored higher on the PDSS than GAD patients (8.2 vs. 1.8; p = 0.0001). Overall, 39% of PD patients scored <7 on the PDSS while 50% of GAD patients scored <14 on the HRS-A. PCPs indicated their agreement with the PRIME-MD for 96% of their patients and did so at a median of 2.0 days following electronic notification.
CONCLUSION: Many PD/GAD cases identified by the PRIME-MD are of mild severity. PCPs rapidly acknowledged and agreed with the finding of PD and/or GAD when presented to them electronically regardless of their patients' level of anxiety symptomatology. These findings have important implications for other investigators planning to use the PRIME-MD as part of an overall quality improvement program for treating PD/GAD.

**PROVIDING PATIENTS ACCESS TO ONLINE MEDICAL RECORDS: A COMPARISON OF PHYSICIAN AND PATIENT EXPECTATIONS.** S.E. Ross[1], M.A. Earnest[1], C. Lin[1], L. Wittevrongel[1]; [1]University of Colorado Health Sciences Center, Denver, CO *(Tracking ID #51447)*

BACKGROUND: Relatively few patients request to read their medical records, but this is likely to change as legal and technological trends make medical records more patient accessible. We surveyed patients and physicians to assess their interests in and concerns about a patient-accessible electronic medical record.
METHODS: Written questionnaires were administered to 98 patients with congestive heart failure who expressed an interest in using a patient-accessible electronic medical record, and 7 physicians who cared for these patients. Physicians were then interviewed individually and these interviews were taped, transcribed, and analyzed for thematic content.
RESULTS: The tables below show statistically significant differences in the expectations of patients who would potentially use an Internet-accessible medical record and the doctors who treat them. Qualitative analysis showed that physicians were particularly concerned about the potential for a patient-accessible record to make patients confused or upset, and the potential for staff and physician workload to increase as patients contacted the office with new questions and concerns.
CONCLUSION: Patients who are likely to utilize a patient-accessible electronic medical record anticipate a variety of benefits, and are highly unlikely to be concerned that they will be confused, worried, or offended by the medical record. Physicians are significantly less optimistic about the benefits of such a record, and are significantly more likely to be concerned about the risks.

**Potential Benefits**

| | Patients | Physicians | p-Value |
|---|---|---|---|
| Will prepare patients for appointments | 89% | 43% | 0.008 |
| Will increase trust in physician | 68 | 14 | 0.008 |
| Will Improve patient understanding | 89 | 57 | 0.050 |
| Will clarify physician instructions | 85 | 43 | 0.020 |
| Will reassure patient | 89 | 43 | 0.008 |
| Will improve compliance | 76 | 29 | 0.015 |

**Potential Concerns**

| | Patients | Physicians | p-Value |
|---|---|---|---|
| Laboratory and radiographic data will confuse patients | 16% | 57% | 0.021 |
| Will make patients worried | 5 | 71 | <0.001 |
| Patients will take offense | 3 | 29 | 0.036 |

**PREDICTORS OF QUALITY OF LIFE IN PATIENTS WITH CORONARY HEART DISEASE: THE HEART AND SOUL STUDY.** B. Ruo[1], M.A. Whooley[1]; [1]VA Medical Center and University of California, San Francisco, CA *(Tracking ID #51169)*

BACKGROUND: Quality of life is an important outcome in evaluating the treatment of patients with coronary heart disease (CHD). Psychosocial factors contribute to quality of life in patients with CHD, but it is unclear how this association compares with that between CHD severity and quality of life. We examined the relative contributions of CHD severity and psychosocial factors to quality of life in patients with CHD.
METHODS: We recruited 418 patients with stable CHD to participate in the Heart and Soul Study, a prospective cohort study designed to determine how psychosocial factors influence the outcomes of patients with CHD. Participants were recruited from the VA Medical Center and University of California, San Francisco between 9/00 and 12/01. All participants underwent exercise treadmill testing with stress echocardiography for measurement of CHD severity. We administered the Patient Health Questionnaire for depressive symptoms, the Hospital Anxiety and Depression Scale for anxiety, the Social Standing Ladders for self-perceived social standing, and the Perceived Stress Scale for measurement of stress. We determined overall quality of life by asking participants, "Compared with other people your age, how would you rate your overall quality of life?" We examined predictors of poor or fair (vs. good, very good, or excellent) quality of life using a logistic regression model, adjusted for multiple potential confounding variables, including age, ethnicity, income, education, and comorbid conditions. All psychosocial variables were entered into the model per standard deviation(SD) change in score.
RESULTS: Of the 418 participants, 33% had exercise-induced ischemia by stress echocardiography, and 11% had a low ejection fraction (<50%). Exercise-induced ischemia and resting ejection fraction were not associated with quality of life. However, income level, depressive symptoms, social standing, anxiety and perceived stress were all strongly associated with quality of life.

| Predictors of poor quality of life | OR (95% CI) | P value |
|---|---|---|
| Exercise-induced ischemia | 0.6 (0.3-1.4) | .24 |
| Ejection fraction (per 10% decrease) | 1.2 (0.8-1.7) | .34 |
| Income ≤$30,000/year | 4.0 (2.0-8.3) | <.001 |
| Poor social standing (per SD decrease) | 1.9 (1.3-2.8) | .001 |
| Depressive symptoms (per SD increase) | 2.1 (1.4-3.2) | <.001 |
| Anxiety (per SD increase) | 0.6 (0.4-0.9) | .01 |
| Perceived stress (per SD increase) | 3.5 (2.1-5.9) | <.001 |

CONCLUSION: In patients with coronary heart disease, psychosocial variables are more strongly associated with overall quality of life than standard measures of CHD severity. Treatment efforts aimed at improving quality of life in patients with CHD should consider psychosocial as well as physiologic factors.

**PATIENT SATISFACTION WITH PROVIDER COMMUNICATION IS RELATED TO PROCESSES AND OUTCOMES OF DIABETES CARE: THE TRIAD STUDY.** M. Safford[1], M. Stevens[2], R. Gerzoff[2]; [1]University of Medicine and Dentistry of New Jersey, Newark, NJ; [2]Centers for Disease Control and Prevention, Atlanta, GA. *(Tracking ID #50923)*

BACKGROUND: Provider communication is an important element of successful health care. Whether higher patient satisfaction with provider communication is associated with better process or outcomes of care is not known.
METHODS: We studied associations between diabetes patients' ratings of their provider's communication and preventive service utilization as well as patient reported outcomes. Data came from 11,927 diabetes patients from 10 health plans enrolled in Translating Research Into Action in Diabetes (TRIAD), a multi-center study of the quality of diabetes care, who responded to a mailed or telephone survey (71% response rate). Patients rated provider communication using questions from the Consumer Assessment of Health Plans. We used mixed effects models to account for clustering by health plan and to adjust for demographics, diabetes treatment and receipt of diabetes education materials.
RESULTS: Of these patients, 55% scored 12 out of 12 (most satisfied) on satisfaction with their provider's communication and 10% scored 4 – 9 (least satisfied). Compared with the most satisfied, the least satisfied patients tended to be younger (10% of the most satisfied were 20 – 45 compared with 18% of the least satisfied), female (53% and 58%, respectively), and African American (17% and 21%) or White (40% and 43%). After adjustment, the most satisfied were more likely than the least satisfied to report having had a foot exam in the past year (predicted probability 83% vs. 64%, adjusted OR 2.68, CI 2.23 – 3.21). Also, the most satisfied were more likely to have had a monofilament exam (predicted probability 50% vs 34%; adjusted OR 2.02, CI 1.68 – 2.43). The least satisfied on average had 21% more diabetes-related foot symptoms (predicted symptom score 7.4 vs. 6.1 out of 16), 18% more general diabetes symptoms (predicted symptom score 21.1 vs. 17.8 out of 36), and were much more dissatisfied with overall diabetes care (predicted satisfaction score 3.3 vs. 1.7 out of 5) (p < .0001 for all). Receipt of flu shots or advice to take aspirin were weakly associated with provider communication rating, but not after adjustment. Patient performance of home glucose monitoring, receipt of annual eye exam or receipt of advice to quit smoking were not associated with satisfaction with provider communication.
CONCLUSION: Processes of diabetes care most amenable to system level interventions (eye exam, flu shot, taking aspirin, quitting smoking) were less sensitive to patient satisfaction with provider communication than processes which require the provider's participation (foot exams). However, patient-reported outcomes (foot-related symptoms, general diabetes symptoms, and satisfaction with overall quality of diabetes care) were more likely to be poor among the least satisfied with their provider's communication.

**HEALTH OUTCOMES IN TRADITIONAL MEDICARE AND MEDICARE HMOS: EQUAL FOR ALL?** D.G. Safran[1], W.H. Rogers[1], I.B. Wilson[1], H. Chang[1], J.E. Montgomery[1]; [1]New England Medical Center, Boston, MA *(Tracking ID #52342)*

BACKGROUND: 5.6 million seniors are enrolled in Medicare HMOs and continued growth is expected. Data comparing health outcomes in traditional Medicare (FFS) vs. Medicare HMOs derive largely from studies of select HMOs, in a few geographic areas, before the 1990s enrollment surge. This study compares health outcomes among seniors in Medicare FFS vs. HMOs, and evaluates whether HMO model-type or profit-status are associated with outcome differences.
METHODS: A longitudinal observational study of non-institutionalized Medicare beneficiaries aged 65 and older was conducted in the 13 states with the largest and most well-established Medicare HMO systems (AZ, CA, CO, FL, IL, MA, MN, NM, NY, OR, PA, TX, WA). All mature Medicare HMOs in these states were included (n = 121). FFS and HMO enrollees were matched on age, sex and zip code. Data were obtained by questionnaires administered annually by mail and telephone (1998 – 2000), and from the Centers for Medicare and Medicaid Services (CMS). Health outcomes included death and changes in physical and mental health as measured by the SF-36 Physical Component Summary (PCS) and Mental Component Summary (MCS). Multivariate models adjusted for patients' baseline sociodemographic and health profiles. Death analyses included all baseline respondents (n = 8755). PCS and MCS outcome analyses included seniors who completed both baseline and 2-year surveys and did not change systems (n = 4231). Separate analyses compared FFS and HMO outcomes for seniors classified as vulnerable due to poor baseline health (n = 2615) or low socioeconomic position (<12 years of education, n = 733).
RESULTS: In the overall sample, no FFS-HMO outcome differences were observed, and there were no effects of HMO model-type or profit status. Among seniors who began the study in poor health or with low socioeconomic position, physical health outcomes favored FFS enrollees (p < .05). In the low socioeconomic group, a 3-point difference in mean PCS change occurred for HMO vs. FFS enrollees (−2.25 vs. +0.76 points, p < .001, standardized effect size [ES] = 0.26). Among beneficiaries sick at baseline, a 1-point difference in mean PCS change occurred (−2.21 vs. −1.21, p < .05, ES = .08).
CONCLUSION: The findings are consistent with previous studies, which find no FFS-HMO outcome differences overall, but find system differences among vulnerable subgroups. Medicare HMOs have historically attracted a disproportionate share of poor and socioeconomically disadvantaged seniors, owing largely to the lower costs and broader coverage. These results suggests that we must guard against the emergence of a two-tiered Medicare system as public policies seek continued expansion of enrollment in Medicare HMOs nationwide.

**CAN THE RETURN VISIT INTERVAL IN PRIMARY CARE BE LENGHENED WITHOUT COMPROMISING PATIENT CARE?** G. Schectman[1], G.P. Barnas[1]; [1]Medical College of Wisconsin, Milwaukee, WI *(Tracking ID #51957)*

BACKGROUND: The return visit interval (RVI), defined as the time interval determined by the clinician to be appropriate between the current visit and the next visit, is influenced by both clinician training and clinical issues. Many providers feel that shorter RVIs are associated with better control of common disorders, such as lipid disorders, diabetes (DM) and hypertension. However, short RVIs result in frequent clinic visits and may increase health costs. To evaluate if an intervention designed to lengthen the RVI could be successful without compromising lipid, hypertension or diabetes (DM) management, we initiated a quality improvement program at the Milwaukee Veterans Affairs Medical Center to monitor RVI and ability to achieve clinical goals for lipid disorders, hypertension, and diabetes.
METHODS: 60 patient visits per quarter were randomly selected for electronic record review for each of 24 clinicians. Following collection of baseline data (Jan – Jun 1999), providers were encouraged to lengthen the RVI while increasing reliance on clinic nurses to assist in the interim management of chronic disease. Academic detailing, provider counseling and provider-specific feedback of RVI and performance data were utilized to motivate behavioral change.
RESULTS: Provider counseling, detailing and feedback resulted in a significant prolongation of the RVI (increased in 23/24 providers) within 18 months. Increasing reliance on clinic nursing staff allowed this change to occur without compromising performance in hyperlipidemia, hypertension or diabetes management (See Table).
CONCLUSION: We conclude that interventions encouraging clinicians to lengthen the RVI can be successful in the primary care setting without adversely affecting important measures of quality of care.

**RVI and Performance**

| | N | RVI≥ 6 Months (%) | Mean RVI (Months) | Achieved Lipid Goals (%) | Achieved BP Goals (%) | Achieved DM Goals (%) |
|---|---|---|---|---|---|---|
| Baseline | 3529 | 29 | 4.2±2.3 | 40 | 43 | 53 |
| 7 – 12/1999 | 3714 | 38 | 4.6±2.3 | 44 | 45 | 55 |
| 7 – 12/2000 | 3847 | 51 | 5.3±2.6 | 48 | 50 | 60 |

**PHYSICIAN RESPONSE TO A DIABETES DISEASE MANAGEMENT INTERVENTION.** J.M. Schectman[1], M.M. Nadkarni[1], J.A. Lyman[1], J.D. Voss[1]; [1]University of Virginia, Charlottesville, VA *(Tracking ID #50948)*

BACKGROUND: Disease management programs to improve the care of chronic illness have received much attention in recent years, though there is limited knowledge about their effect on physician behavior. As part of a diabetes disease management program, we evaluated the impact of computer-based patient-specific feedback regarding multiple clinical parameters on physician actions.
METHODS: In an academic resident/faculty internal medicine practice, 81 physicians received feedback regarding the refill-based medication adherence, metabolic control, retinal

screening status, lipid levels, and renal function of 800 diabetic patients. A 30 minute small group educational session about the disease management intervention was attended by 45 of the physicians, whereas 36 received only a two page outline of the content. The association of the feedback with patient referral for adherence counseling, metabolic co-management, diabetes education, and eye exam was evaluated, controlling for physician demographic, education, and training factors.
RESULTS: The odds of referral for nurse practitioner co-management of metabolic control was 3.6 × higher and for R.N.-based case-management 2.7 × higher if the HbA1c was >8% ($p < 0.0001$). Diabetic medication adherence below 80% was associated with a 2.7 × greater odds of referral for Pharm.D. adherence counseling ($p < 0.0001$). Referral for adherence counseling was independently associated with metabolic control and level of adherence, not physician gender or faculty vs resident status. The odds of ophthalmologic referral were 4.5 × higher if the last exam was >1yr earlier ($p < 0.0001$). Appropriate referral for retinal exam (>1yr since last exam) was independently associated with having a faculty physician (OR 1.6, $p = 0.04$) and with poor metabolic control. Overall, physicians took action in 77% of their diabetic patients in response to the intervention. Physicians who attended the educational session were no more likely to refer patients for adherence counseling, metabolic control, case-management, or retinal exam than those who only received a summary memo.
CONCLUSION: Feedback of patient lab, visit, and medication adherence data can result in substantive and appropriate physician actions, regardless of whether accompanied by an educational session or an explanatory memo. Data-driven approaches can facilitate implementation of team-based disease management programs.

**SURVEILLANCE CARE OF BREAST CANCER SURVIVORS: 1991 VS. 1995.** K.G. Schellhase[1], A.B. Nattinger[1], R.A. Sparapani[1], M.M. Schapira[2]; [1]Medical College of Wisconsin, Milwaukee, WI; [2]Medical College of Wisconsin, Shorewood, WI *(Tracking ID #48678)*

BACKGROUND: Previous research found mammography underutilized among breast cancer survivors ("survivors"). Professional society guidelines published in 1994 recommended surveillance mammography annually for survivors, but recommended against "intensive" surveillance such as with bone scans, CT scans, and liver function tests (LFTs). We compared pre- and post-guideline surveillance test utilization.
METHODS: Using Surveillance, Epidemiology, and End Results (SEER) tumor registry data linked to Medicare, we identified one cohort of 3507 survivors diagnosed in 1991, and a second cohort of 4016 survivors diagnosed in 1995. Patients were at least age 66 at the time of cancer diagnosis, had unilateral stage 0, 1, or 2 disease, and survived at least 36 months after diagnosis. Months 7 – 18 after cancer diagnosis comprised surveillance year 1, and months 19 – 30 were surveillance year 2. To adjust for secular trends, survivors were matched 3:1 to cancer-free Medicare enrollees by age and SEER site. Medicare claims were used to identify test utilization. The odds of receiving a surveillance test were estimated using logistic regression, adjusting for potential confounders and for secular trends in test utilization.
RESULTS: The Table presents test utilization in terms of unadjusted rates, and adjusted odds for all survivors. Tests reported on a biennial basis refer to the performance of at least one test within the two surveillance years. In other analyses for African American (AA) survivors in particular, mammography rates increased from 53.2% (1991) to 59.7% (1995). Adjusted odds for AA survivors receiving mammography, vs. Caucasians, were 0.77 (95% CI: 0.68,0.88) for both '91 and '95 cohorts.
CONCLUSION: Mammography continues to be underutilized, particularly among AA survivors, in this high-risk population wherein 100% should receive annual surveillance. Even accounting for secular trends towards increased utilization, use of non-recommended surveillance tests increased for the '95 cohort for CTs and LFTs, and did not change significantly for bone scans. These data suggest that surveillance care guidelines have not had a substantial effect on care for breast cancer survivors.

**Table: Unadjusted Rates, and Adjusted Odds Ratios of Test Utilization**

| | '95 Cohort Rate | '91 Cohort Rate | Odds, '95 vs. '91 (95% CI) |
|---|---|---|---|
| Annual mammogram | 70.0 | 66.0 | 1.22 (1.14, 1.31) |
| Biennial bone scan | 18.2 | 24.9 | 0.94 (0.82, 1.07) |
| Biennial CT scan | 16.3 | 14.2 | 1.64 (1.49, 1.79) |
| Biennial LFTs | 18.0 | 9.2 | 2.01 (1.82, 2.22) |

**RECENT TRENDS IN LIPID MANAGEMENT AMONG OUTPATIENTS WITH CORONARY ARTERY DISEASE.** J.L. Schnipper[1]; [1]Brigham and Women's Hospital, Boston, MA *(Tracking ID #51828)*

BACKGROUND: Many uncontrolled trials have found improvement in lipid management in patients with coronary artery disease (CAD), but these results may simply reflect temporal trends. This study compared the quality of lipid management among outpatients with CAD in 1999 – 2000 with the care provided in 1997 – 1998.
METHODS: Cross-sectional study of 5607 patients with coronary disease who were seen in one of nine outpatient practices affiliated with Massachusetts General Hospital (MGH). Demographic and laboratory information were collected on two cohorts of patients: 1) those diagnosed by 1997 and evaluated in 1997 – 1998; 2) those diagnosed by 1999 and evaluated in 1999 – 2000. We then performed additional analyses on the 1687 patients in both cohorts.
RESULTS: A comparison of the cohorts shows substantial improvement in lipid management over time (Table). The number of patients with an LDL <100 mg/dL increased from 32.6% to 44.0%. While 18.9% of patients did not receive an LDL test in 1999 – 2000, 86.9% of them had a total cholesterol/HDL ratio <3.5. Patients in the oldest age quartile (>77 years) were also less likely to be tested (adjusted odds ratio 0.53, 95% confidence interval 0.39 – 0.72). Analyzing the 1687 patients in both cohorts, of the 426 patients with an LDL > 130 mg/dL or no LDL test in 1997 – 1998, 199 of them (46.7%) improved to an LDL <130 mg/dL in 1999 – 2000. Conversely, among the 1261 patients with an LDL <130 mg/dL in 1997 – 1998, only 59 (4.7%) had worse lipid control in 1999 – 2000, but 174 (13.8%) did not receive a follow-up LDL test in the subsequent two years.
CONCLUSION: At outpatient practices affiliated with a major academic medical center, clinically significant improvements over time were noted in lipid management of patients with CAD. Lack of LDL testing in certain groups of patients (those with an excellent cholesterol/HDL ratio, the very old, or those who have already achieved LDL goals) may be justifiable, even if this approach conflicts with current recommendations. Studies of interventions to improve lipid management in patients with CAD should be mindful of these types of temporal trends.

**Lipid Management: 1997 – 1998 vs. 1999 – 2000**

| | 1997 – 1998 (N = 3920) | 1999 – 2000 (N = 3301) |
|---|---|---|
| LDL <100 mg/dL | 1278 (32.6%) | 1453 (44.0%) |
| LDL 100 – 129 mg/dL | 1151 (29.4%) | 818 (24.8%) |
| LDL 130 – 150 mg/dL | 441 (11.3%) | 247 (7.5%) |
| LDL >150 mg/dL | 372 (9.5%) | 158 (4.8%) |
| Not tested | 678 (17.3%) | 625 (18.9%) |

**ASSOCIATION OF PERCEIVED QUALITY OF CARE WITH DIABETES QUALITY OF CARE INDICATORS IN A MULTI-STATE SURVEY.** C. Sciamanna[1], C. Neighbors[1]; [1]Brown University, Providence, RI *(Tracking ID #51713)*

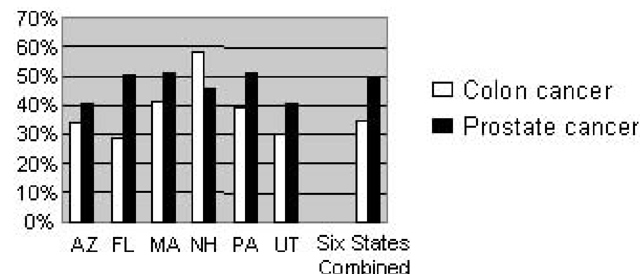
BACKGROUND: Objective: To understand the association between perceived quality of care and actual quality of diabetes care.
METHODS: Research Methods and Design: This study was a cross-sectional study of patients with diabetes from a multi-state sample. Subjects were asked: 1) to rate their overall health care quality, 2) to rate the quality of their interpersonal care (how often did doctors "listen", "explain things", "show respect" and "spend enough time") and 3) whether or not they had received: eye exams, foot exams, glycosylated hemoglobin measurements, and a class to help them manage their diabetes.
RESULTS: Results: Of the four diabetes quality of care processes, 21.3% (65), 25.2% (87), 29.0% (100) and 22.9% (79) reported receiving 0 – 1, 2, 3, and 4 processes, respectively. More than a quarter (28.1%) reported either retinopathy or a foot ulcer. Overall perceived quality of care was not associated with the number of diabetes process of care received. For example, those who reported receiving all 4 diabetes care processes rated their care as a 4.18 (of a possible 5) compared to 4.14 for subjects who reported receiving 0 – 1. Overall quality of care was negatively associated with being seen in an emergency room in the past year and reporting that health care providers less frequently "listen", "explain things", "show respect" and "spend enough time".
CONCLUSION: Conclusions: Our results suggest that overall quality of care ratings cannot be used as an indirect measurement of guideline-based diabetes processes of care.

**IMPACT OF THEAPEUTIC DRUG EXCHANGE OF HMG-COA REDUCTASE INHIBITORS ON LIPID LEVELS.** R.E. Scranton[1], L. Inouye[2], J.M. Tessier[2], Q. Ray[2], M.R. Stedman[1], H. Sesso[1], J.M. Gaziano[1]; [1]Boston VA Health Care System, Boston, MA.; [2]Naval Medical Center Portsmouth, Portsmouth, VA *(Tracking ID #52029)*

BACKGROUND: Mandatory therapeutic drug exchanges occur in health care networks as a method to reduce drug costs. HMG-CoA reductase inhibitors (statins) are often the subject of such formulary substitutions due to the perception that a substantial cost savings may be achieved without adversely affecting low-density lipoprotein cholesterol (LDL) levels or the proportion of patients meeting National Cholesterol Education Program (NCEP) goals. We attempted to further define the impact of a mandatory exchange of statin medication on lipid levels, particularly among individuals meeting NCEP goals prior to therapeutic substitution.
METHODS: In October of 1999, the Department of Defense required all patients to change from their current statin to either cerivastatin or simvastatin. We retrospectively identified 317 patients from the Naval Medical Center Portsmouth Internal Medicine clinic who received a "non-contract" statin 3 months prior to the switch date and followed them until June 2001. Sixty-two percent of those identified (n = 197) were switched to an approved statin and 112 had complete pre and post lipid panels. Of the 112 individuals with complete data, we determined the proportions of individuals meeting NCEP goals before and after a change in therapy and compared these differences using McNemar's test. We than evaluated the changes in LDL levels as a group and stratified by whether they met NCEP goals at baseline. We used the paired T-Test for within group comparisons and the Student T-Test to compare between group differences.
RESULTS: Eighty-five percent of our 317study patients were over the age of 55 and 42% were women. Ninety-two percent either had coronary artery (CAD) disease or two or more risk factors for CAD. Among the 112 patients with complete baseline and post-substitution lipid panels, mean LDL increased by 4.0 mg/dl. The percentage of individuals attaining NCEP goals increased from 62% to 64% ($p = 0.74$). Forty-two patients were not at goal at baseline and their LDL cholesterol decreased on average by 28.8 mg/dl ($p = 0.13$). Seventy patients met NCEP goals at baseline and their LDL cholesterol increased by 23.6 mg/dl ($p = 0.032$). The difference in the change in LDL cholesterol between these two groups was significant ($p < 0.001$).
CONCLUSION: We found significant differences in LDL changes depending on whether the patient met baseline NCEP goals. LDL cholesterol increased among those who were at goal at baseline whereas LDL cholesterol decreased in patients not at goal. These opposing effects may explain why published reports often show no significant changes in LDL levels or NCEP goal attainment after statin exchanges.Further studies need to address the overall impact of therapeutic drug exchanges on patient-related outcomes.

**SCREENING FOR PROSTATE AND COLON CANCER: ARE PRIORITIES IN ORDER?**
B.E. Sirovich[1], S. Woloshin[1], L.M. Schwartz[1]; [1]VA Outcomes Group, White River Junction, VT *(Tracking ID #52505)*

BACKGROUND: The debate about the efficacy of prostate cancer screening has received substantial attention in the medical literature and the media. Nonetheless, the extent to which men are actually screened is unknown. We sought to describe the prevalence of prostate cancer screening, and to compare it to screening for colon cancer, the only cancer in men for which screening has proven efficacy.
METHODS: We used the Behavioral Risk Factor Surveillance System of the Centers for Disease Control and Prevention, an annual cross-sectional population-based telephone survey of adults conducted in all 50 states. In the year 2000 survey, for the first time, six states included questions about prostate cancer screening. We measured the proportion of men aged 40 and older (n = 5052) who reported having ever been screened (with PSA), and being up-to-date with screening (i.e. PSA within one year). Using data from men in the same states (n = 4813) in 1999 the most recent year for which data was available we also calculated rates of colon cancer screening. Here, we defined up-to-date screening as a fecal occult blood test within one year or sigmoidoscopy/ colonoscopy within 5 years.
RESULTS: In five out of six states, men were more likely to report prostate than colon cancer screening (both ever having been screened and up-to-date on screening). The figure shows the percent of men age 50 – 59 with up-to-date screening for each cancer.




These trends were consistent across all age groups. Of note, a substantial proportion of men in their forties reported having been screened (29% prostate, 26% colon).
CONCLUSION: Prostate cancer screening is more common than colon cancer screening. Physicians should make sure that men who choose to be screened for cancer are aware of the known mortality benefit of colon cancer screening and the uncertainty about screening for prostate cancer.

**CORRELATES OF MEDICAL RECORD DOCUMENTATION IN THE AMBULATORY CARE SETTING.**
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BACKGROUND: Documentation in the medical record facilitates diagnosis and treatment, communicates pertinent information to other caregivers to reduce medical errors, and serves an important medical-legal function in risk management. No prior studies have conclusively determined the predictors of proper medical record documentation. We therefore undertook the present study to examine the correlates of medical record documentation in the ambulatory care setting.
METHODS: The study sample consisted of 167 physicians (117 internists and 50 pediatricians) and 834 patients randomly selected from 14 practice sites of a multi-specialty medical group with an electronic medical record in greater Boston, Massachusetts. Trained registered nurses collected data from the patients' records using a structured abstraction form. The five dichotomous measures of medical record documentation, based on HEDIS quality measures, were smoking history, medications, drug allergies, compliance with screening guidelines, and immunizations. Mixed effects logistic regression models were used to determine whether physician age, physician gender, practice site, hours per week of direct patient care, teaching status, years since medical school graduation, patient age, and patient gender independently predicted documentation of each of the five outcome measures. We developed a sum score (value 0 to 5) for each patient record based on the number of measures successfully documented and constructed mixed effects linear regression models with the sum score as the dependent variable. Internists and pediatricians were analyzed separately.
RESULTS: Among internists, unadjusted rates of documentation were 96.2% for immunizations, 91.6% for medications, 88% for compliance with screening guidelines, 61.6% for drug allergies, 37.8% for smoking history. While some physician and patient characteristics predicted some of the measures of documentation quality, no consistent pattern emerged. For example, female internists were more likely than male internists to document smoking history (odds ratio [OR], 1.90; 95% confidence interval [CI], 1.27 – 2.83) but were less likely to document drug allergies (OR, 0.51; 95% CI, 0.35 – 0.75). Patient age and site of practice were the only significant ($P < 0.05$) correlates of the sum score. There was an inverse relationship between patient age and the sum score among adult patients (beta = −0.00709; P = 0.0059) and a direct relationship among pediatric patients (beta = 0.038; $P < 0.0001$). Site of practice outside Boston city limits was associated with the sum score among pediatric patients (beta = 0.4035; P = 0.018) but not among adult patients.
CONCLUSION: We found a variety of predictors of medical record documentation, but no consistent pattern emerged. Medical record documentation varied depending on the measure in question, with room for improving documentation in most domains. Further study could lead to targeted interventions to improve clinicians' documentation practices.

**NATIONAL TRENDS IN ANTIOBESITY MEDICATION USE.**
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BACKGROUND: Medications for obesity remain controversial, particularly after the 1997 removal of antiobesity medications from the market. We describe national patterns and trends in antiobesity medication use before, during, and after 1997.
METHODS: We used serial cross-sectional drug prescribing data from the IMS HEALTH National Disease and Therapeutic Index. Quarterly data were available on a nationally representative sample of patient visits to office-based U.S. physicians. We selected visits by patients reported to be clinically obese from 1991 to 2001 with quarterly sample sizes between 268 and 626 visits (11,628 visits in total). For these visits, we assessed new and continued use of medications employed for obesity treatment.
RESULTS: At its peak in Quarter 2 (Q2) 1997, 2.5 million Americans were taking antiobesity medications, a four-fold increase over the prior two years (0.7 million per quarter). Although antiobesity medication use diminished dramatically following the market exit of fenfluramine and dexafenfluramine in 9/1997, current levels of use (1.2 million drug mentions in the Q1 2001) remain well above those noted in the early 1990's. In early 1997, antiobesity medication use continued to increase even after initial reports of drug toxicity and did not diminish until after FDA action. The mean number of antiobesity medications per patient peaked in 1997 (1.61) having been lower in both the early 1990's (1.13) and more recently (1.06 in 2001). Phentermine has consistently been the most common antiobesity medication. Use of phentermine peaked in Q2 1997 with 1.8 million mentions. In Q1 2001, there were 0.32 million mentions of phentermine (27% of drug-treated patients). Prior to its removal from the market, fenfluramine use increased 20-fold between Q1 1994 (0.04 million) and Q2 1997 (1.1 million). Dexfenfluramine reached a peak this same quarter at 0.57 million mentions. In Q1 2001, more recently available medications, orlistat (0.25 million) and sibutramine (0.20 million), were used less often than phentermine. Most antiobesity medication use continues to occur in patients without other reported medical conditions (60%), although treatment of patients without comorbidities was greatest in 1997 (71%).
CONCLUSION: The use of antiobesity medications grew rapidly in the mid-1990's spurred by public and professional interest in fenfluramine/phentermine combination therapy. This rapid growth may have exposed more people than necessary to the risks associated with these drugs. While this growth was abruptly halted in 1997, antiobesity medications remain more widely used today than in the early 1990's. However, many patients prescribed antiobesity medications appear unlikely to meet accepted guidelines for the use of these medications. These findings suggest a need for strategies to ensure that the adoption of new medical practices follows available evidence and guidelines.

**BROAD-SPECTRUM ANTIBIOTIC USE IN ADULTS WITH ACUTE RESPIRATORY INFECTIONS.**
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BACKGROUND: Antibiotic choices affect health care costs and the emergence of bacterial resistance. We studied the frequency of broad-spectrum antibiotic use in a national sample of adults with non-pneumonic acute respiratory infections (ARIs), and investigated the association between clinical and non-clinical factors and choice of broad-spectrum agents.
METHODS: Using data from the 1997 – 99 National Ambulatory Medical Care Survey, we sampled adults seen by primary care physicians for the common cold, nonspecific upper respiratory tract infections (URIs), acute sinusitis, acute bronchitis, otitis media, pharyngitis, laryngitis, and tracheiitis. Among 1264 patients receiving antibiotics, we used multivariable models to assess predictors of broad-spectrum antibiotic use. We defined broad-spectrum antibiotics as second-generation macrolides, quinolones, amoxicillin/clavulanate, and second and third-generation cephalosporins.
RESULTS: Antibiotics were prescribed to 63% of patients with an ARI, ranging from 46% of patients with the common cold or nonspecific URIs to 69% of patients with acute sinusitis. Broad-spectrum antibiotics comprised 54% of all antibiotic prescriptions, exceeding half of antibiotic prescriptions for patients with the common cold and nonspecific URIs (51% of prescriptions), acute sinusitis (53%), acute bronchitis (63%), and otitis media (65%). After adjusting for diagnosis, independent predictors of broad-spectrum antibiotic use were visits to an internal medicine provider (OR 2.3, 95% CI 1.6 – 3.4, compared with general and family practitioners), Northeast U.S. region (OR 2.0, 95% CI 1.1 – 3.5) and Southern region (OR 1.8, 95% 1.1 – 3.0, compared with Western region), and self-pay insurance (OR 0.6, 95% CI 0.3 – 1.0, compared with private insurance). Patient age, gender, ethnicity, urban vs. rural location, and HMO membership were not associated with broad-spectrum antibiotic use.
CONCLUSION: Broad-spectrum antibiotics are commonly used in patients with acute respiratory infections, particularly by internists and physicians in the Northeast and South. Interventions to reduce broad-spectrum antibiotic use may target these high-use groups, but must address the reasons that underlie these variations in prescribing behavior.

**ERRORS IN ISOLATION: PATIENT CARE UNDER CONTACT PRECAUTIONS.**
H.T. Stelfox[1], D.A. Redelmeier[1]; [1]University of Toronto, Toronto, Ontario, Canada. *(Tracking ID #50236)*

BACKGROUND: Hospital contact precaution policies prevent the nosocomial transmission of infectious diseases, but may inadvertently lead to patient neglect. We tested whether the quality of medical care differed between isolated and non-isolated inpatients.
METHODS: We identified consecutive adults admitted to a large Canadian teaching hospital between January 1, 1999 and January 1, 2000 who were placed in contact precautions during their hospital stay (n = 81). Controls were selected by identifying the two patients who occupied each isolated patient's hospital bed immediately before and after their admission (n = 162). Quality of care measures encompassed three different domains of care: processes of care, outcomes of care, and patient satisfaction. Adjustments for age, gender, Charlson Index score, prior circumstances (nursing home residence vs. private residence) and admitting service (medicine vs. surgery) were conducted using regression analyses.

RESULTS: We found that isolated patients compared to non-isolated patients were more likely to have their vital signs not recorded as ordered (59% vs. 41%, p < 0.001) and more likely to have no daily physician progress note recorded (43% vs. 23%, p < 0.001). Isolated patients were ten times more likely to have a preventable adverse event (41% vs. 4%, p < 0.001) during their hospital stay. No differences in hospital mortality were observed for the two groups (21% vs. 14%, p = 0.142). However, isolated patients were more likely to formally complain to the hospital about their care than non-isolated patients (10% vs. 1%, p = 0.003).
CONCLUSION: Patients placed in contact precautions appear to have less care documented, experience more preventable adverse events and express greater dissatisfaction with their care than non-isolated patients.

**BRINGING EVIDENCE TO THE POINT OF CARE: WHAT DO CLINICIANS WANT?**
S. Straus[1], D. Davis[1], M. Evans[1], V. Goel[1]; [1]University of Toronto, Toronto, Ontario, Canada *(Tracking ID #51222)*

BACKGROUND: Questions frequently arise during clinical practice but many of these questions go unanswered and high-quality evidence is inconsistently translated into practice. This study was performed to determine the information needs of general internists and family physicians and the perceived barriers to using evidence resources at the point of care.
METHODS: Cross-sectional, self-administered mail questionnaire of 275 general internists and 275 family physicians practising in Ontario, Canada. A sample of physicians also participated in focus group sessions that were audio recorded and the resulting tapes were analysed.
RESULTS: 70% of eligible participants responded. Mean age of respondents was 45.1 years and 45% worked in university-affiliated settings. 95% of respondents had regular access to the Internet and 35% owned a PDA. Clinicians most commonly use PDAs for scheduling (35%) and for storing telephone numbers and addresses (25%). Clinicians want rapid access to evidence at the point of care but participants identified several barriers to using evidence resources including lack of time to access the resources, and lack of time to investigate the technology and the evidence resources. Information that they would find most useful at the point of care includes summaries of evidence with an explicit clinical bottom line, and information about drug interactions. Participants said traditional clinical practice guidelines were the least useful resource at the point of care.
CONCLUSION: One potential method of improving implementation of evidence is to bring evidence to the point of care. Clinicians want access to high-quality information in concise, intelligible formats at the point of care and do not want information provided in traditional clinical practice guidelines. Using the knowledge that we have gained from Phase 1 of this project, we are presently formatting high-quality evidence resources for use on wireless devices and once this process has been completed, a randomised trial will be performed to determine the impact on patient care and medical error of providing high-quality evidence on mobile computers.

**PHYSICIANS' ATTITUDES AND PRACTICES IN CARING FOR FAMILIES OF PATIENTS WHO DIE IN THE HOSPITAL.**
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BACKGROUND: The purpose of this analysis is to (1) Describe physicians' views of their roles and responsibilities in relation to families of patients who die in the hospital, (2) Examine whether physicians report having specific goals and practices in working with families, and (3) Describe whether residents and interns report receiving explicit training about working with these families.
METHODS: From a random sample of deaths on the medical service at two hospitals, interviews were conducted with 196 attendings, residents, and interns who cared for sampled patients (response rate 80%). Interviews incorporated quantitative measures and open-ended questions assessing physicians' experiences caring for dying patients and their families. Descriptive statistics summarized attitudes and behaviors related to families, and qualitative analyses identified major themes and connections, e.g., goals of care in interactions with family and satisfaction with care.
RESULTS: While more than half of attendings, residents, and interns (54%, 53%, 63%, respectively) agreed that physicians have a responsibility to provide bereavement care, less than one-third (20%, 30%, 20%) provided grief-related resources to families in this sample. Less than one-quarter of attendings (23%), and few to none of the residents and interns (0%, 1.5%), sent notes of condolence to the family after the death. Most attendings and residents felt well-prepared to talk with families after a death (90%, 78%), yet fewer than half actually reported doing so with the families in this sample. Interns were most likely to dread having to talk with families after a death; one-fifth of interns reported this compared with 14% of residents and 6% of attendings. One-fifth of interns also felt ill-prepared to discuss end-of-life decisions with families, and 27% felt unprepared to talk with families after a death. Qualitative analyses show few physicians describing clearly-stated and consistent goals in dealing with families, and few interns and residents described receiving training about working with families at the end of life. Those who did articulate clear approaches to working with families reported greater satisfaction caring for dying patients and their families and a sense that they were "able to do something" for the patient and family.
CONCLUSION: Although a majority of physicians at all levels of training agree that they have a responsibility to address the needs of families of dying patients, only a minority do so. There is little evidence of systematic goals, practices, or training related to working with families of patients at the end of life. Findings suggest a need to broaden the current model of end-of-life care in the hospital to include families as part of the unit of care.

**U.S. HOPSITALIZATIONS & COSTS FOR ILLICIT DRUG USERS WITH SOFT TISSUE INFECTIONS.**
T.A. Takahashi[1], C. Maynard[1], K.A. Bradley[1]; [1]VA Puget Sound Health Care System, Seattle, WA *(Tracking ID #52016)*

BACKGROUND: Up to 32% of injection drug users have soft tissue infections at any given time. These infections frequently require hospitalization and operating room debridement and often cause substantial morbidity and mortality. The economic and health care burden of treating them has never been determined nationally. This study estimates national inpatient health care utilization and costs for hospitalizations with illicit drug use and soft tissue infection diagnoses. Since no ICD-9 codes exist for injection drug use or its related infections, these diagnoses are the most appropriate for estimating injection drug use-related soft tissue infections.
METHODS: The Health Care Cost and Utilization Project Nationwide Inpatient Sample, a national database of a 20% sample of non-Federal hospital discharges, was obtained for 1997. Hospitalizations for illicit drug users with soft tissue infections were identified by discharge ICD-9 codes, for patients aged 11–65 years. We describe hospitalizations for illicit drug users with soft tissue infections, and estimate costs using charge data, on a national level.
RESULTS: In 1997, there were an estimated 27,417 hospitalizations for illicit drug users with soft tissue infections in the U.S. The costs of these hospitalizations totaled 514 million dollars. The majority were Medicaid (42%) or self-pay (21%). Their median duration was 4 days with 10% of hospitalizations ending against medical advice and 1.4% ending in death. An estimated 58% of hospitalizations for illicit drug users with soft tissue infections were at teaching hospitals, compared to only 35% of other hospitalizations. While 34% of hospitalizations for illicit drug users with soft tissue infections were in the Western U.S., only 18% of all other hospitalizations occurred in that region.
CONCLUSION: In 1997, hospitalizations for illicit drug users with soft tissue infections cost over half a billion dollars. Teaching hospitals and hospitals in the Western U.S. disproportionately bear the burden of these hospitalizations, a fifth of which are for uninsured patients. If injection drug use-related soft tissue infections had a unique ICD-9 code, they could be tracked more easily and accurately in the future.

**EVALUATION OF A QUESTIONNAIRE TO MONITOR PATIENTS WITH HYPERTENSION.**
K. Taneda[1], M.B. Mcdonell[1], S.D. Fihn[1]; [1]HSR&D Center of Excellence, VA Puget Sound Health Care System, Seattle, WA *(Tracking ID #52383)*

BACKGROUND: Because it is usually asymptomatic, heypertension is difficult to monitor via questionnaire. We developed a 13-item self-administered questionnaire measuring 5 dimensions: 1. Health behaviors related to risk of hypertension such as avoiding salt, exercise, restriction of alcohol, controlling weight, 2. Compliance with medications, 3. Satisfaction with care for hypertension, 4. Overall satisfaction with the current treatment, 5. Awareness of adverse effects of medications. As part of the Ambulatory Care Quality Improvement Project, a multi-center randomized trial of audit and feedback we sought to evaluate the construct validity of the Seattle Hypertension Questionnaire (SHQ).
METHODS: The SHQ was mailed to 15,763 patients with hypertension during the 2-year study period. We correlated BP values measured at each clinical encounter with response on the SHQ. Each SHQ is scored on 5-point Linkert scale. For this analysis, we selected BP values obtained closest to the date the questionnaire was returned. If no BP was recorded within 90 days of that day, the questionnaire was not included.
RESULTS: BP and SHQ records were available for 6,419 patients. We found significant correlations between BP items on the behavior, compliance and satisfactions scales (Table). All correlations were unadjusted and in the hypothesized direction except for exercise.
CONCLUSION: The SHQ appears to be a valid measure of health behaviors, compliance, and overall satisfaction related to treatment for hypertension.

| | SBP:Pierson r(p) | DBP:Pierson r(p) |
|---|---|---|
| Avoid Salt(1:Always–5:Never) | −.001 (.945) | .037 (.003) |
| Exercise(1:Always–5:Never) | −.033 (.008) | −.022 (.081) |
| Restrict Alcohol(1:Always–5:Never) | .017 (.162) | .076 (.000 ) |
| Control Wt(1:Always–5:Never) | −.009 (.473) | .072 (.000) |
| Meds Compliance(1:Poor–5:Excellent) | .006 (.635) | −.041 (.001) |
| Satisfaction(1:Poor–5:Excellent) | −.066 (.000) | −.081 (.000) |
| Adv.Effects(1:Severe–4:No) | −.041 (.001) | −.072 (.000) |

**COMPUTER-BASED OUTPATIENT CARE SUGGESTIONS FOR REACTIVE AIRWAYS DISEASE: A RANDOMIZED, CONTROLLED TRIAL.**
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BACKGROUND: Reactive airways disease (RAD) is common and morbid. Evidence-based guidelines for treating RAD exist, yet care and outcomes remain suboptimal.
METHODS: We randomized primary care patients to have RAD care suggestions delivered to primary care physicians (MDs) when writing any order on computer workstations, pharmacists (PHs) when filling any outpatient prescription, or both (MDs and PHs) vs. controls. Eligible patients had a prior in- or outpatient diagnosis of RAD or 2 prescriptions for any RAD drug. Patients were interviewed at baseline and 1-year later assessing generic quality of life (QOL) via the SF36, RAD-specific QOL via the McMaster Asthma and COPD Questionnaires (MAQ and MCQ), satisfaction with their physician (ABIM questionnaire) and pharmacist, and medication compliance (Inui/Morisky questionnaires and drug refill data). Over 1 year, we also assessed emergency room visits, hospitalizations, and health care charges. At baseline, we surveyed physicians' attitudes toward guidelines.
RESULTS: We enrolled 706 patients, 70% of those eligible (mean age 53 years, 69% with COPD): 169 controls, 194 MD intervention, 161 PH intervention, 182 both. Of 648 patients (92%) with outpatient visits, 623 (96%) had RAD care suggestions (mean of 2.8/patient). Compliance with RAD care suggestions was not significantly different between groups: 27% for controls, 29% for MD intervention, 25% for PH intervention, and 32% in the both intervention group (p = .25). For generic QOL, control patients and those receiving both interventions had improved SF36 Role Physical scores (p = .04), and PH patients had improved General Health scores (p = .01). There were no differences in the SF36's other 6 subscales.

There were no differences in any of the 5 subscales on the MCQ or the MAQ's Overall, Symptom, or Activity subscales. Patients in the PH intervention group had improved MAQ Emotion (p = .04) and Environment scores (p = .03). There were also no differences in patients' satisfaction with their physicians or pharmacists, medication compliance, emergency room visits (1.1/patient, 0.2 RAD-specific), hospitalizations (0.5/patient, 0.2 RAD-specific), or total charges ($6,261/patient). Physicians viewed guidelines as helpful reviews but reinforced "cookbook medicine" to lower health care costs.
CONCLUSION: Computer delivery of RAD care suggestions to primary care physicians and/or outpatient pharmacists did not improve patients' subjective or objective outcomes. Effective interventions will require enhancing the message (e.g., with symptom information) or its delivery (e.g., requiring responses) or providers' attitudes toward computers and guidelines suggesting how they should provide care.

**WHAT IS THE CONCORDANCE BETWEEN PATIENT SELF-REPORT AND MEDICAL RECORD AS A DATA SOURCE FOR MEDICATION USE?**
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BACKGROUND: Medical record data may be considered the preferred data source for treatments received by patients (pts), but review is costly and often infeasible. In lieu of medical record data, pt self report is often used, but questions arise about the completeness and validity of these data for evaluating the quality of care.
METHODS: As part of the UCLA/PBGH Physician Value Check Validation Study, we examined medication (med) data collected using both pt survey and medical record (MR) abstraction for pts with: diabetes, ischemic heart disease, asthma or COPD, or chronic low back pain, from 3 West Coast states. We surveyed 3656 patient from 48 participating medical organizations (response rate 63%). The mailed, self-administered survey queried pts about utilization, health status, and process of care over a 2-year time window, as well as current prescription med use. MRs for pts with survey data were reviewed and abstracted by trained nurses to collect data from the same time window. We evaluated concordance between the 2 data sources for the following prescription med categories: lipid-lowering meds including statins, antidepressants, ACE inhibitors for 1270 pts; sulfonylureas for 404 pts with diabetes; beta blockers for 338 pts with heart disease; and inhaled corticosteroids for 338 pts with asthma or COPD, using the McNemar's Chi Square test, Kappa statistic, and the Sensitivity and Specificity of the self-report (using the MR as the gold standard). We compared levels of concordance by age (<50 vs 50–64 vs >64), race/ethnicity (non-Hispanic white vs other), education (≤12 years vs >12 years) and annual income (≤$30K vs >$30K).
RESULTS: Using data from pts with both survey and MR review, we analyzed a subset of data for pts with at least one visit to a clinician during the two-year study window (n = 1270). The % of pts who used a med according to both data sources ranged from 11% for antidepressants among all pts to 44% for sulfonylureas among diabetic pts. Kappa statistics ranged from 0.57 for anti-depressants to 0.76 for beta-blockers indicating fair to good agreement between data sources beyond what would be expected by chance alone. Sensitivity ranged from 51% for anti-depressants to 78% for beta-blocker use. Specificity ranged from 88% for sulfonylurea use to 98% for anti-depressant use. Concordance between data sources varied by patient age, race/ethnicity, education and income, with lower levels of concordance associated with older age group, non-white race/ethnicity, and lower education and income* levels.
CONCLUSION: Reported rates of med use vary as a function of data source with concordance between data sources varying by patient characteristics. Quality of care scores may be affected. * p < .05 for Test of Equal Kappa coefficients.

**OUTPATIENT UTILIZATION AMONG CHRONICALLY ILL PATIENTS IN MANAGED CARE.**
D. Tisnado[1], W.P. Chen[1], J. Adams[2], H.H. Liu[1], C. Damberg[3], D. Carlisle[1], C.M. Mangione[1], K.L. Kahn[1]; [1]UCLA Department of Medicine, Los Angeles, CA; [2]RAND, Santa Monica, CA; [2]PBGH, San Francisco, CA *(Tracking ID #52310)*

BACKGROUND: Although inpatient utilization in managed care organizations has been studied extensively, less is known about outpatient utilization. We studied the number of visits and providers seen by a cohort of chronically ill patients to assess outpatient utilization using claims/encounter data (C/E) and data from medical records (MR).
METHODS: As part of the UCLA/PBGH Validation Study, we obtained consent for review of C/E data from 48 (83%) of 58 medical organizations for 63% of 2287 chronically ill patients in 3 West Coast states. 38 medical organizations provided C/E data for these patients for a 24-month window. Medical records for patients with C/E data were reviewed and abstracted by trained nurses. C/E and MR data from 1156 patients from 34 (71%) of 48 consenting medical organizations. We excluded 11 patients with no claims or encounters during the 24-month study period, for a total of 1148 patients.
RESULTS: Using data from patients with claims, encounter, and medical record data for the same 24 month window, we analyzed a subset of data for patients with at least one visit to a clinician (i.e., physician or nurse practitioner) (n = 1148). Based on C/E and medical record data, the mean number of visits to a clinician during the study window was 23, including 11 visits to a primary care provider (PCP). Visit frequency varied by disease, from a mean of 19 for patients with low back pain to 26 for patients with diabetes. Patients saw a mean of 6 unique providers. We also examined the unique contribution of medical record data as compared with C/E data alone. Over 8% of visits and 3% of clinicians would not have been measured using C/E data alone. Medical record data provided additional information that was not captured by the C/E data for 300 patients (26%). With the addition of medical record data, 4% more patients were noted to have had >1 PCP visit, 4% more heart patients were noted to have had >1 cardiology visit, and 3% more diabetes patients were noted to have had >1 eye exam.
CONCLUSION: On average, patients with chronic diseases in managed care on the West Coast had 23 visits to 6 different clinicians in the 2-year study period. Over 26% of patients had one or more visits found by medical record review but not noted in C/E data. Although less expensive and time consuming to obtain and use relative to medical record data, C/E data alone do not capture the complete experience of direct patient care.

**PERSISTENCE OF THE USE OF CARDIOVASCULAR MEDICATIONS: DOES ABILITY TO PAY MATTER?**
J. Tjia[1], J. Schwartz[1]; [1]University of Pennsylvania, Philadelphia, PA *(Tracking ID #51792)*

BACKGROUND: Little is known about patients who discontinue antihypertensive or lipid-lowering therapy. We sought to identify factors associated with non-persistence, and how these factors differ for antihypertensive versus lipid-lowering medications.
METHODS: We conducted a cross-sectional study from the 1998 National Health Interview Survey (NHIS), a population-based survey of households in the United States. Subjects were asked whether they had ever received a prescription for blood pressure or cholesterol lowering medication, whether they were currently taking the medication, and whether during the past 12 months there was any time when they could not afford their prescription medications. We used bivariate and multivariate analyses to identify risk factors for non-persistence of medication therapy.
RESULTS: Of 5,297 adults who received a prescription for blood pressure treatment, overall 13% stopped medication use. Discontinuation differed across age groups (<65 yo vs >65 yo: 17.9% vs 7.7%; p < 0.001) and health insurance coverage (coverage vs no coverage: 36.3% vs 11.5%; p < 0.001). Of the 1,731 adults who used cholesterol-lowering medications, overall 23% stopped medication use. In addition to age and health insurance, annual income was also associated with differences in discontinuation of cholesterol therapy (>$20,000 vs <$20,000: 27% vs 21%; p = 0.01). Overall, 7% reported they could not afford their medication in the past 12 months. Among subjects who discontinued use without the consent of their physician, the strongest independent predictors of discontinuance were having a decline in health status over past 12 months (odds ratio [OR] 2.09; 95% confidence interval [95% CI], 1.27–3.42), inability to afford medications in the past 12 months (OR 1.71; 95% CI, 1.01–2.89), and male sex (OR, 1.61; 95% CI, 1.19–2.18). Having employer-sponsored health insurance (OR 0.60; 95% CI 0.38–0.96), college education (OR 0.49; 95% CI 0.25–0.96) and recent outpatient physician visits (OR 0.65; 95%CI 0.57–0.73) were associated with persistent medication use.
CONCLUSION: Discontinuation of antihypertensive and lipid-lowering therapy is associated with inability to pay for prescriptions, particularly among certain vulnerable groups. The uninsured and lower income populations are at greater risk of discontinuing therapy due to economic issues, and may ultimately be at greater risk of poor health outcomes as a result.

**SENIORS AND PRESCRIPTION DRUG COSTS—OPPORTUNITIES TO SAVE? A LESSON FROM MEDICARE + CHOICE.**
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BACKGROUND: For the 1 in 6 Medicare beneficiaries who are enrolled in managed care (Medicare + Choice), many have drug coverage that gives them less than $1,000 each year to pay for out-patient medications. After patients exceed this amount, they must pay the full drug cost and are at risk for using less medications. This study looks at the top medications driving the prescription costs of Medicare beneficiaries enrolled in a leading Medicare + Choice plan and evaluates whether lower cost substitutes are available.
METHODS: The sample included all Medicare beneficiaries enrolled in a major Medicare + Choice plan (>100,000) in one large state, who filled at least one prescription in the first half of 2001. The first six months of 2001 pharmacy claims data were used to identify those beneficiaries likely to use up their annual drug benefits and to determine the top medications driving the pharmacy cost for these beneficiaries. These medications were evaluated for availability of generic substitutes and potential replacement with lower cost medications in both same and different therapeutic classes.
RESULTS: The proportion of members predicted to exceed their annual outpatient drug benefit before the end of the year ranged from 1 in 4 for a $750 benefit to 1 in 12 for those with a $2000 benefit. The top twenty medications driving the pharmacy cost for these beneficiaries were similar across all benefit levels. Fifteen of these medications were for the management of chronic conditions such as hypercholesterolemia, diabetes, depression, hypertension, osteoporosis, and emphysema/asthma. Two other medications were for the treatment of pain and another two drugs were for management of reflux/peptic ulcer disease. A thirty-pill supply for these medications ranged from $28 to $340, based on commonly available online pharmacy prices. Only two drugs out of twenty were available in generic form in 2001. Potential cost-savings were possible for many of the medications but only by changing to less expensive medications with different side effect profiles (for example from Cox-2 Inhibitors to Non-Steroidal Anti-Inflammatory medications).
CONCLUSION: Medications driving drug costs for these Medicare beneficiaries were mostly for chronic diseases and did not have generic substitutes. Physicians can play an important role in helping Medicare + Choice members make the most of their limited drug benefits by discontinuing unnecessary medications and by helping patients weigh the risk and benefits of using lower cost medications that are also indicated for the management of many of their chronic conditions.

**EFFECT OF LINKAGE OF MEDICAL CARE TO DRUG TREATMENT ON HOSPITALIZATION OF DRUG USERS WITH HIGH VERSUS LOW MEDICAL COMPLEXITY.**
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BACKGROUND: Drug abuse is associated with substantial medical morbidity and demand for inpatient care. Improved delivery of medical care for drug users in drug treatment may improve health status and consequently reduce hospitalization. We examined the association of providing medical care onsite or in the same building as a drug treatment clinic on hospitalization of drug users with differing medical complexity.
METHODS: We studied drug users enrolled in New York State Medicaid for >10 mos of both 1996 and 1997. We conducted surveys of directors of 125 methadone and/or medically-supervised drug free programs in 1998 regarding about linkage of medical care services in 1996–97. Responses reporting general and HIV medical care onsite or in the same building

were categorized as tightly linked medical care. For 57 methadone treatment programs, we were able to merge survey data to Medicaid claims of clients attending one of these programs for ≥6 months in 1996. Patients with HIV infection and/or another chronic disease (CD) such as diabetes or hypertension were identified from diagnoses on claims. For persons with high medical complexity (HIV+, CD+) and those with low medical complexity (HIV−, CD−), we estimated separate multivariate models predicting any hospitalization in 1997 using GEE and adjusting for patient demographics, medical conditions, substance abuse, and the presence of a usual source of medical care in 1996.
RESULTS: Hospitalization differed significantly for persons with high medical complexity (n = 549; 55.2%) vs. those with low complexity (n = 4,684; 21.6%), P < 0.001. Tightly linked medical care was reported by 66.4% of methadone clinics and was associated with significantly lower adjusted odds (AOR) of hospitalization in the patients with low medical complexity (AOR 0.76, CI 0.64, 0.90) while it showed no association in those with high complexity (1.08, CI 0.74, 1.59).
CONCLUSION: Provision of medical services onsite or close to a drug treatment clinic appears to benefit only drug users with lower medical complexity. Further research is needed to evaluate the quality of the care delivered by sites that are tightly linked to drug treatment programs.

**COMPARISON OF HEALTH PROFESSIONAL STUDENTS' KNOWLEDGE AND ATTITUDES TOWARD COST-EFFECTIVE PHARMACOTHERAPY AND PHARMACEUTICAL SALES REPRESENTATIVES: DATA FOR CURRICULAR REVIEW?** P. Turner[1], M. Monaghan[2], B. Houghton[2], K. Galt[2], B. Bergnan-Evans[2], E. Rich[2]; [1]University of Vermont, Burlington, VT; [2]Creighton University, Omaha, NE *(Tracking ID #51809)*

BACKGROUND: Current research and editorials are addressing the controversial issues of pharmaceutical sales representatives (PSRs) practices and direct-to-consumer (DTC) advertising. The controversies surround whether physician prescribing behavior may be influenced by the promotional practices of PSRs and the industry's expansion into advertising prescription-only agents direct to consumers. If so, at what level of training do such influences become evident (e.g., residency versus undergraduate/professional training) and are they exlusive to medicine? The purpose of our study was to determine if significant differences exist among senior-level medical, nurse practitioner, and PharmD students in their knowledge and attitudes regarding PSRs, strategies to address consumers seeking a prescription secondary to DTC advertising, and subsequent cost-effective pharmacotherapy.
METHODS: A cross-sectional survey design was used to compare three groups of health professional students at Creighton University regarding their knowledge and attitudes of five domains associated with cost-effective pharmacotherapy: 1) Pharmaceutical marketing techniques and expenditures; 2) professional ethics regarding interactions with PSRs; 3) use of drug information resources; 4) strategies to address patient requests for specific medications secondary to DTC advertising; and 5) evidence of cost-effective pharmacotherapeutic decision-making. Nonparametric analyses with bonferroni-adjusted posthoc comparisons ($p < .017$ significance-level) were used to compare the three groups of senior medical students (n = 59), nurse practitioner students (n = 17), and PharmD students (n = 53).
RESULTS: Compared to medical and nurse practitioner students, pharmacy students were more knowledgeable about pharmaceutical marketing expenditure, less likely to consider PSRs a reliable source of drug information, and more likely to perceive specific gifts from PSRs as inappropriate. Pharmacy students were also more confident in their ability to steer a patient away from a requested drug than the other two groups of students. When viewing cost-effective drug use, medical and nurse practitioners students were more expensive than pharmacy students.
CONCLUSION: Our data demonstrate that health professional students' knowledge and attitudes toward the pharmaceutical industry and the use of cost-effective pharmacotherapy are intact prior to graduation. Professional curricula must address the controversies of PSRs' influences and the potential conflicts that may arise secondarily to DTC advertising. Any educational interventions must occur early in the professional program with continued reinforcement throughout the clinical years of training.

**ARE PATIENTS WITH DEPRESSION IN PRIMARY CARE MORE DIFFICULT TO TREAT THAN THOSE SEEN BY MENTAL HEALTH SPECIALISTS? RESULTS FROM A PRIMARY CARE CLINIC SAMPLE.** B.W. Van Voorhees[1], D.E. Ford[1], K.M. Rost[2], L.V. Rubenstein[3], L. Meredith[4]; [1]Johns Hopkins University, Baltimore, MD; [2]University of Colorado, Denver, CO; [3]RAND, Sepulveda, CA; [4]RAND, Santa Monica, CA *(Tracking ID #50785)*

BACKGROUND: Depression patients treated by primary care physicians (PCP) have much lower rates of high quality treatment than those treated by mental health specialists (MHS). Low self-assessed treatment need is associated with poor quality depression care. This study examines whether lower self-assessed need for care and depression treatment acceptability are associated with having received mental health services from a PCP rather than a MHS.
METHODS: This study is a cross-sectional analysis of the baseline questionnaire responses of 881 primary care patients with major depression who had received mental health services in the previous six months and who enrolled in the Quality Improvement for Depression Collaboration Study (QID, three of the four studies, excluding participants who received no mental health services). Mental health treatment by a primary care provider (PCP) was defined as having at least one visit to a primary care provider for mental health services and none with a MHS. Multiple logistic regression analysis was used to adjust for patient demographics, disease severity and co-morbidity, and cost and convenience factors.
RESULTS: The study sample included 27% minority and 28% male participants with a mean age of 44 years. Forty-five percent of the sample had received mental health care exclusively from a primary care physician and the remainder either exclusively with a mental health specialist or with visits to both types of providers. Those who received mental health care exclusively from a PCP were much more likely to believe it was acceptable to "wait and get over it naturally" (definitely vs. definitely not acceptable, OR = 2.9 CI 1.9, 4.5) and were much less likely to believe that antidepressant medication was an acceptable treatment (definitely vs. definitely not acceptable OR = 0.50, CI 0.28, 0.68). Individual counseling for depression was much less acceptable to those who obtained care from a primary care physician compared to those who sought care from a MHS (definitely vs. definitely not acceptable OR = 0.11, CI 0.05, 0.25). These results persisted after adjustment using multivariate logistic regression analysis. Female gender and lower educational level were associated with treatment by a PCP. Disease severity, medical co-morbidity and out-of-pocket costs did not differ between the two groups.
CONCLUSION: In the primary care setting, depression patients seen exclusively by PCP's may have attitudes and beliefs more averse to treatment than those seen by MHS's. Interventions targeted at improving patient self-awareness and treatment acceptance may be essential to improving the quality of depression treatment in primary care.

**AYURVEDIC TREATMENT OF DIABETES — COMPARISON OF EVIDENCE AVAILABLE IN INDIA WITH EVIDENCE FROM WESTERN DATABASES.** S. Venuturupalli[1], M. Hardy[2], I. Coulter[2], S. Asch[2], P.G. Shekelle[2]; [1]VA Greater Los Angeles Healthcare System-Sepulveda Campus/UCLA, Sepulveda, CA; [2]RAND, Santa Monica, CA *(Tracking ID #51657)*

BACKGROUND: Increasing numbers of patients are using Complementary and Alternative Medicine worldwide. In order to guide our patients effectively, it is important for physicians to objectively assess the evidence for CAM therapies. Well conducted systematic reviews and meta-analyses, which allow for a more objective appraisal of the evidence than traditional narrative reviews, are the preferred methods to achieve this goal. While conducting systematic reviews, including all the eligible evidence is necessary in order to avoid bias. We conducted a systematic review of Ayurvedic (traditional Indian medicine) therapies for diabetes. As part of this study, the question arose - is there significant RCT data of sufficient quality on Ayurvedic Medicine in India that is not accessible in Western computerized databases?
METHODS: We searched several electronic databases including MEDLINE, HealthSTAR, EMBASE, Allied and Complementary Medicine, MANTIS, BIOSIS previews, CAB HEALTH, and CINHAL using the search term "Ayurved*" combined with botanical names of commonly used herbs in Ayurveda. Additionally, we developed a strategy to identify and retrieve Ayurvedic literature from India by sending an investigator to India. The Indian search was limited to articles published in English. All abstracts, titles and articles were reviewed by two independent reviewers using the standard Cochrane methodology for conducting systematic reviews. For inclusion in our evidence report our criteria were- all human clinical trials of Ayurvedic therapies for diabetes.
RESULTS: 54 articles reporting 62 studies met our inclusion criteria. This included 7 RCT's, 10 controlled clinical trials (CCT's), 38 case series and 7 cohort studies. Of these, 31 were from Western (W) and 23 were from Indian (I) sources. 21 studies, 8 (W) and 13 (I), were considered to be of sufficient quality to perform statistical analysis. 7 of these studies were RCT/CCT's, including 4 Western (mean Jadad score 1.75/5) and 3 Indian (mean Jadad score 0.33/5). Of the 21 studies, 5 out of 8 Western v/s 0 out of 13 Indian articles reported data on HgA1C. 1 out of 8 Western articles v/s 7 out of 13 Indian articles studied herbal combinations rather than single herbs.
CONCLUSION: A large body of Ayurvedic evidence is found only in India and not in Western databases. The Indian evidence tends to have fewer RCT/CCT's, have lower Jadad scores and study more herbal combinations compared with Western sourced evidence. However, we found it to be of sufficient quality to be included in a systematic review. This finding is relevant for systematic reviews of other interventions that have a specific country and language identification such as acupuncture and particular herbs.

**BIOLOGICAL DETERMINANTS TO MEASURE ADHERENCE TO TREATMENT IN PATIENTS WITH AIDS.** I. Visweshwar[1], R. Sudheendra[1], K. Subramanian[1], V. Thirumavalavan[1], A. Greenberg[1]; [1]Jersey City Medical Center, Jersey City, NJ *(Tracking ID #52327)*

BACKGROUND: Treatment of HIV infection with Highly Active Antiretroviral Therapy (HAART) has decreased overall morbidity and mortality. Adherence to treatment is needed to achieve its beneficial effects. Various measures including pill count, interview with composite adherence score, HIV viral load have all been used to evaluate adherence to HAART. We studied the Absolute Neutrophil Count (ANC) and CD4 counts before and after initiation of antiretroviral therapy to assess patient compliance.
METHODS: This is a retrospective study of 363 patients attending an HIV clinic in an inner city hospital. The ANC and CD4 counts before and after initiation of HAART were assessed. No other test to assess adherence to treatment was done during the three- month period.
RESULTS: Three hundred and sixty three patients had a median ANC of 2.5/mm3 and CD4 of 306/mm3 prior to treatment. Three months after commencement of HAART, the ANC and CD4 counts were 2.4/mm3 and 323/mm3 respectively.
CONCLUSION: The data support that current antiretroviral treatment regimen are fraught with a high degree of non-compliance and strategies to improve adherence to treatment is needed for effective HIV control. Strategies include treatment under supervision, appointing a dedicated team-member to monitor treatment, providing patient-education explaining the possible disastrous complications of untreated HIV infection and finally, adopting an empathetic approach to non-compliant patients. Early failure of adherence to treatment regimen is a strong, reliable predictor for long-term failure.

**PREVALENCE OF MECHANICAL LOW BACK PAIN IN A LARGE, EMPLOYER-BASED HEALTHCARE PLAN.** S.M. Vogel[1], S.G. Sajjan[1], P.B. Landsman[1], W.L. Straus[1]; [1]Merck & Co., Inc., West Point, PA *(Tracking ID #51981)*

BACKGROUND: The reported prevalence of low back pain (LBP) varies widely due to differences in case definition and data sources. For health services research, these challenges are compounded by the heterogeneous etiologies of LBP, and the numerous diagnostic codes that indicate potential LBP problems. Mechanical LBP is a subset of back pain almost always caused by trauma, and reported to be a leading cause of disability and productivity loss in working-aged adults. The purpose of this study was to estimate the annual prevalence of

mechanical LBP in a working-aged population, using claims data from a large employer-based healthcare plan.
METHODS: We performed a retrospective analysis of claims data from MEDSTAT Marketscan, a database containing all billable inpatient and outpatient events for the healthcare plan enrollees of over 200 major companies. All plan members and their dependents, aged 18 to 64, continosly enrolled in the plan throughout 1998 were included in the analysis. Mechanical LBP cases were identified using the classification methodology of Cherkin (1992), employing inclusion and exclusion criteria based on ICD-9 billing codes.
RESULTS: 1,370,946 continously enrolled members throughout 1998, and aged 18 – 64 were included in the analysis, and 62,126 members (4.53%[95% Confidence Interval (CI)] [4.465, 4.534]) were identified as prevalent mechanical LBP cases. Of eight overall mechanical LBP diagnostic categories, the most frequently recorded were non-specific backache (62.3%) and miscellaneous LBP (22.5%), followed by herniated disc (6.3%), probable degenerative change (4.2%), possible instability (2.9%), spinal stenosis (1.4%), fracture (0.28%) and sequelae of previous back surgery (0.22%). The majority of mechanical LBP cases (60.9% or 37,848) returned for a second visit, and the timespan between the first and second visits averaged 28 days per patient. Over 95% of LBP cases were never hospitalized for LBP, but averaged 5 outpatient visits for LBP-related problems over the year. The annual hospitalization rate was 18.5 stays/1000 LBP patients.
CONCLUSION: The 1998 annual prevalence of LBP in this working-aged population was 4.53% (95% CI[4.465, 4.534]). These data may be used to estimate the proportion of mechanical back pain in other groups, and illustrates the need for explicit definitions to better identify LBP patients within populations.

**INCREASES IN HMO PENETRATION AND EFFECT ON AMI MORTALITY.** K. Volpp[1], E. Buckley[1]; [1]University of Pennsylvania, Philadelphia, PA *(Tracking ID #52732)*

BACKGROUND: Higher rates of HMO penetration in a marketplace have been shown to be associated with lower utilization of expensive technologies and lower costs among Medicare fee-for-service patients. Studies using cross-sectional data to compare the quality of care for HMO and Fee for Service (FFS) patients have found mixed results concerning quality of care. The cross-sectional design of these studies makes risk adjustment, a particular problem with administrative data, a central issue in determining the validity of these study findings. In this study, we use a measurement approach that mitigates the importance of risk adjustment to examine the question of whether increases in HMO penetration affect the quality of care delivered to all patients within a marketplace. By examining how outcomes within a given geographic area (MSAs) change over time for an emergent condition for which all patients are hospitalized (acute myocardial infarction), we minimize the likelihood of risk selection affecting the measured outcomes.
METHODS: We use data on 499,900 AMI patients from the National Inpatient Sample from the Healthcare Cost and Utilization Project from 1989 to 1996 and MSA-level HMO data from the HMO Geographical Enrollment Data file. Individual patient mortality risk is modeled using logistic regression as a function of HMO market share and the uninsurance rate, with adjustment for patient comorbidities and market variables as controls. MSA dummy variables are used to adjust for unobserved time-invariant heterogeneity between MSAs, and year dummy variables are used to adjust for intertemporal technological changes common to all MSAs. Linear probability model coefficients are presented for ease of interpretation after ensuring that they were qualitatively and quantitatively similar to the logistic coefficients.
RESULTS: We find strong relationships between increases in HMO penetration, the percent uninsured and increased AMI mortality risk. A 1% increase in HMO penetration is associated with a 0.03% increase in mortality risk ($p < .0001$). Similarly, a 1% increase in the uninsurance rate is associated with a 0.05% increased mortality risk for all patients ($p < .0001$). The rate of CABG and angioplasty is significantly lower in MSAs with large increases in the rate of uninsured. In MSAs with large increases in HMOs, there is a lower CABG rate but a higher angioplasty rate. No significant differences in demographic or clinical characteristics of patients between these areas or within these areas over time were observed that would suggest that these results are an artifact of differential changes in case mix between MSAs.
CONCLUSION: It appears that there are spillover effects from increases in both HMO penetration and the percentage of uninsured on the quality of care for all AMI patients within a given market. This raises concerns about the social welfare implications of reforms that may save money but affect the quality of care.

**ALLOPATHIC MEDICAL SCHOOL DEANS' VIEWS ON PRIMARY CARE MEDICINE.** S. Wahi-Gururaj[1], R.H. Friedman[1], J.J. Alpert[1], H. Bauchner[1], L. Culpepper[1], T. Heeren[2], M.A. Moskowitz (Deceased)[1], A. Singer[3]; [1]Boston University School of Medicine, Boston, MA; [2]Boston University School of Public Health, Boston, MA; [3]American Association of Colleges of Osteopathic Medicine, Chevy Chase, MD *(Tracking ID #51265)*

BACKGROUND: Organized primary care (PC) faculties have been part of academic health centers for three decades. We surveyed medical school deans to understand their current views about primary care in their own institutions and nationally.
METHODS: In 2000, we mailed a 27-item survey to deans of the 126 U.S. allopathic medical schools, concerning the school's priorities and performance, the deans' attitudes about and evaluation of PC, and the school's efforts to strengthen PC. The deans were asked to compare family medicine (FM), general internal medicine (GIM), and general pediatrics (GP) with non-PC clinical departments at their schools.
RESULTS: Among the 83 (64%) responding schools, 82% had formally organized departments/divisions of FM, GIM, and GP. Deans rated the goals of increasing the number of PC faculty and educating for PC careers at a moderate level of importance and believed their schools were achieving these goals. 63% of deans agreed there is a "rich research base for academic PC" and 73% stated that "research was as important for PC departments/divisions as for other medical school departments." 77% agreed that "PC departments/divisions need financial support from the medical school to survive." GIM and GP faculty were rated higher than specialty faculty on their clinical expertise and productivity ($p < 0.001$); FM was rated equally with the non-PC faculty. FM, GIM, and GP were rated superior to non-PC faculty for teaching skills ($p < 0.001$) and teaching programs ($p < 0.05$). All three were rated lower than non-PC disciplines for research productivity ($p < 0.01$) and revenues ($p < 0.001$). FM and GP were also rated lower for their research skills ($p < 0.001$) and clinical revenues ($p < 0.01$) than non-PC disciplines. Overall financial resources were considered equivalent for PC and non-PC departments. 90% of medical schools attempted to strengthen PC departments/divisions by changing the curriculum to promote PC; 75% placed major emphasis on financially supporting PC departments/divisions and faculty. Fewer institutions focused on administrative or policy changes.
CONCLUSION: Deans have a generally positive orientation to and assessment of academic primary care. Although they considered research to be an important activity for PC, they evaluated it at a lower level relative to non-PC departments. Academic medical leaders and other policy-makers need to study interventions to maintain primary care educational efforts and improve the research activities and the financial status of primary care faculties.

**PREDICTIVE VALIDITY OF AMBULATORY CARE GROUPS AND THE CHRONIC DISEASE INDEX IN PREDICTING RESOURCE UTILIZATION.** T. Wahls[1], G.E. Rosenthal[1], M.J. Barnett[1]; [1]University of Iowa, Iowa City, IA *(Tracking ID #50331)*

BACKGROUND: Accurate forecasting of expected resource utilization in ambulatory populations is critical to determining physician panel sizes and setting capitation rates. While the predictive validity of demographic factors is limited, few validated non-proprietary methods exist that account for comorbid illness. The goal of the current study was to compare the predictive validity of an established proprietary method (Ambulatory Care Groups [ACGs]) and a new non-proprietary method based on computerized pharmacy data (the Chronic Disease Index [CDI]).
METHODS: The sample included 35,584 patients enrolled in VA primary care clinics in Iowa and Nebraska who utilized VA services in both 1999 and 2000. For each patient, ACG and CDI score were determined based on 1999 data. ACGs classify patients into one of 52 mutually exclusive groups using ICD-9-CM codes. The CDI utilizes pharmacy data to assign an ordinal score that represents the number of organ systems being treated by patients' medication regimens. Analyses compared the variance (R square) in the total numbers of outpatient days of care and clinic visits explained by each method and the discrimination (c statistic) of the two methods for predicting inpatient hospitalizations.
RESULTS: Mean age of the 35,584 study patients was 64 years; 96% were male and 95% were white. 84% were either indigent or had a medical condition related to military service (Category A) and 16% met neither of these criteria (Category C). 9% and 10% of patients, respectively, had inpatient hospitalizations in 1999 and 2000. In linear regression models, demographics (age and gender)only explained 7% of the variance in total outpatient days for 1999. Addition of CDI scores increased the explained variance to 21%, while addition of ACGs to demographic data increased the explained variance to 52%. As would be expected, the amount of explained variance fell when demographics and 1999 ACG and CDI scores were used to predict outpatient days in 2000. However, the amount of variance explained by the addition of ACGs remained higher (27% vs. 14%). Results were similar in analyses of total clinic visits and in separate analyses of Category A and Category C veterans. Finally, c statistics were higher for ACGs than CDI scores for predicting an inpatient admission in 1999 (0.87 vs. 0.71, respectively) and in 2000 (0.73 vs. 0.66, specifically).
CONCLUSION: Both ACG and CDI scores had higher predictive validity for resource utilization than demographics alone and may be useful in setting physician panel sizes and determining capitation rates for individual patients. Although the CDI is a simple non-proprietary method based on available computerized pharmacy information, the CDI had lower predictive validity than ACGs. Thus, ACGs may remain a preferred methodology for ambulatory case-mix adjustment.

**PHYSICIANS' DECISION TO OVERRIDE COMPUTERIZED DRUG ALERTS IN PRIMARY CARE.** S.N. Weingart[1], M. Toth[1], D.Z. Sands[1], M.D. Aronson[1], R.B. Davis[1], R.S. Phillips[1]; [1]Beth Israel Deaconess Medical Center, Boston, MA *(Tracking ID #51401)*

BACKGROUND: Although computer physician order-entry (CPOE) reduces medication errors among inpatients, little is known about CPOE in primary care. To learn more, we studied primary care physicians' behavior in response to computerized drug alerts. We hypothesized that most physicians would honor the alerts, and examined attributes of patient, prescriber, and medication that affected physicians' decision to override alerts.
METHODS: We conducted a retrospective study of medication alerts generated from October through December 2000 by a CPOE system used at five Boston adult primary care practices. For detailed review, we selected all 66 alerts in which physicians did not prescribe an alerted medication, and selected at random 123 of 452 alerts that resulted in a written prescription. The sample included 46 drug-allergy and 143 high-severity drug interaction alerts. We completed a chart review for every alert, abstracting each patient's age, gender, and insurance. We determined if a prescription was written, if it was for a new drug or a refill, and if it resulted in an ADE. We also collected data about the prescriber's gender, years in practice, trainee status, and practice site. We completed univariable analyses using chi-square and multivariable logistic regression with forward selection ($p < 0.2$) to identify factors associated with physicians' decision to override a medication alert.
RESULTS: Of the 518 alerts examined in the study, physicians overrode 91% of drug-allergy and 89% of high-severity drug interaction alerts. In our sample (n = 189), 11 drugs accounted for 82 alerts (43%). Cyclobenzaprine alone accounted for 30 alerts (16%). The most frequent drug interactions — sympathomimetic/tricyclic antidepressants, anticoagulants/macrolides, and SSRIs/tricyclics — together accounted for 59 (41%) of 143 drug interaction alerts. In univariable analyses, prescription type was the only factor associated with the decision to prescribe a drug that triggered an alert (52% of new prescriptions vs. 91% of refills, $p < 0.001$). In the multivariable analysis, physicians were more likely to prescribe (override) an alerted medication if the patient had managed care insurance rather than Medicare (adjusted OR 2.7, 95% CI 1.2 – 5.9), if the prescriber was a hospital-based faculty physician rather than a

community-based internist (3.5, 1.5 – 8.2), and for refills compared to new prescriptions (9.9, 3.1 – 31.9). We found no ADEs in cases where physicians honored the alert and 3 ADEs among patients with alert overrides, a non-significant difference (p = 0.5).
CONCLUSION: A minority of primary care internists changed their prescription in response to a drug-alergy or high-severity drug interaction alert. This may reflect skepticism (especially among academic physicians) about some CPOE medication alerts. Since physicians often bypassed alerts for prescription refills, CPOE systems should suppress alerts for refills of medication combinations that patients currently tolerate.

**WHICH FACTORS PROMOTE ADHERENCE TO A CONGESTIVE HEART FAILURE GUIDELINE IN THE VA NATIONAL HEALTH CARE SYSTEM?** K.F. Welke[1], K.D. Mccoy[1], T. Vaughn[1], B.J. Bootsmiller[1], M.M. Ward[1], B.N. Doebbeling[1]; [1]University of Iowa, Iowa City, IA *(Tracking ID #52357)*

BACKGROUND: The purpose of this study is to identify factors at multiple organizational levels associated with provider adherence to a congestive heart failure (CHF) clinical practice guideline (CPG) in the Veterans Affairs (VA) national health care system.
METHODS: We developed a survey to investigate multiple levels of potential predictors of provider adherence with a CHF guideline, including guideline characteristics, provider characteristics, facility culture and structure, and regional network influence. Key informants including quality managers at all Veterans Affairs Medical Centers (VAMCs) with ambulatory care clinics were surveyed. Multivariate logistic regression analysis using generalized estimating equations assessed the association between these factors and estimates of provider adherence.
RESULTS: 242 surveys representing 130 of 143 (91%) VAMCs were returned. Provider adherence with the CHF guideline was estimated as "great" or "very great" at 42% of facilities. Factors from four of the queried categories (provider knowledge and agreement, guideline characteristics, facility culture, and performance feedback) were independently associated ($P < 0.05$) with provider adherence. These factors were guideline clarity, provider agreement with the CPG, provider sentiment that the guideline improved patient care, effective communication between physicians and nurses, and facility collection of CPG adherence data beyond that mandated by the VA.
CONCLUSION: Providers are more likely to adhere to a guideline that they consider clearly written, relevant to their patient population, and in agreement with their practice style. Effective communication between the groups of providers using the CPG also facilitates adherence. Monitoring and feedback of CPG and quality improvement efforts are likely to result in greater adherence. Emphasizing these factors when creating and implementing CPGs may improve provider adherence and patient outcomes.

**POOR HYPERTENSION CONTROL IS COMMON – OR UNCOMMON, DEPENDING ON YOUR DEFINITION.** J. Whittle[1], M. Kelley[2]; [1]Kansas University Medical Center, Kansas City, KS; [2]VA Pittsburgh Healthcare System, Pittsburgh, PA *(Tracking ID #52427)*

BACKGROUND: Although studies suggest that poor hypertension (HTN) control is common, providers may have different threshholds of HTN control that they believe warrant intervention. Since the definition of poor control may affect provider behavior, we sought to determine the impact of different definitions on the prevalence of poor HTN control.
METHODS: Trained reviewers gathered data from electronic progress notes of patients scheduled to be seen by staff clinicians in primary care clinics of a tertiary VA hospital. Data included: lowest systolic (SBP) and diastolic (DBP) blood pressure recorded at each of the 3 visits preceding the index visit, HTN medications, and comorbidities increasing the urgency of HTN treatment. Persons were considered to have HTN if they had that diagnosis, were on medications for HTN, or had a SBP ≥ 140 or DBP ≥ 90 on two of three visits. We examined varying definitions of good and poor BP control. First we considered patients to have poor control if SBP ≥ 140 or DBP ≥ 90 at all three visits. Second we required that blood pressure be elevated at two consecutive visits. Finally, we examined the effect of considering a BP of ≥ 160/95 to be poor control.
RESULTS: We reviewed electronic records for patients of 24 providers (1943 patients, 1469 of whom (75.6%) were hypertensive). Most were older (mean age 62.1 years), male (98.6%) and white (80.4%). If a BP ≥ 140/90 is considered poor control, 31.1% of all patients had 2 consecutive visits with poor HTN control, and 15.9% had 3 consecutive visits with poor control. If BP ≥ 160/95 is considered poor control, 6% of patients had 2, and 2% had 3 consecutive visits with poor control. Using the least stringent criteria, we found that poor control was more likely in blacks than whites (39.1% vs 31.0%), older than younger age groups (25.1%, 32.1%, and 33.6% for those <55, 55 – 69 and >70) and among those with a comorbidity than those without (35.1% vs. 26.5%). Diabetics in particular were more likely to be in poor control than those without diabetes (38.9% vs. 27.7%).
CONCLUSION: The definition of poor HTN control markedly affects its prevalence. Physicians who require consecutive BPs with poor control or rather marked abnormalities in BP may be reluctant to change medications for some patients that some could consider to have poor control. However, many patients have poor HTN control with most definitions. Inadequate control is more likely in the groups most at risk for complications because of comorbidity, race or age.

**VARIATIONS IN TECHNICAL PERFORMANCE AND QUALITY OF USE OF COLONOSCOPY THROUGHOUT EUROPE: THE EPAGE MULTICENTER STUDY.** V. Wietlisbach[1], F. Froehlich[2], J.P. Vader[1], J.J. Gonvers[2], B. Burnand[1]; [1]Institute of Social and Preventive Medicine, University of Lausanne, Lausanne, Switzerland; [2]Medical Outpatient Clinic, University of Lausanne, Lausanne, Switzerland *(Tracking ID #51179)*

BACKGROUND: A large multicenter observational study (EPAGE) was conducted to measure variation in technical performance and quality of use of colonoscopy in Europe.
METHODS: 20 European colonoscopy centers were included in the study. These centers differed widely in type of setting (affiliated to a public hospital 17, private clinics 3, private gastroenterology practice 1), mode of referral (open-access 13, gatekeeping 8), patient mix (mainly outpatients 16, others 5), accessibility to procedure (mean waiting time range 0 – 135 days) and volume of activity (range 300 – 6,000 colonoscopies per year). Each center was asked to include 300 consecutive patients. Patient and procedure characteristics were recorded on a standardized questionnaire by the endoscopist.
RESULTS: 5,291 patients (male 49%, median age 59y) entered the study by October 2001. 59% were outpatients, 18% day-cases and 23% inpatients. 14% of patients were self-referred by the endoscopist , 34% were referred by other gastroenterologists, 35% by GP/internists and 17% by other physicians. Most frequent indications for colonoscopy were post-polypectomy surveillance (18 %), hematochezia (17%), abdominal pain (13%) and colorectal cancer screening (11%). 7% of procedures were primarily therapeutic. Emergency colonoscopies occurred in 3% of patients. Colon cleansing was satisfactory (completely clean, clear liquids aspirable) in 73% of patients overall, but the between-center range (BCR) of this proportion extended from 51% to 90%. Procedure mean total duration was 22.3 (BCR 13.9 – 30.2) minutes, mean withdrawal time was 9.8 minutes (BCR 5.7 – 17.2 ). The caecum was reached in 89% (BCR 69 – 98%) of patients. 4 % (BCR 1 – 14%) of procedures were assessed as extremely difficult by the endoscopist. Fluoroscopy was used in only 5 centers. The rate of post-procedure complications was 1%. Endoscopists took biopsies in 35% (BCR 9 – 69%) of patients and performed polypectomy in 25% (BCR 14 – 35%). A clinically-relevant diagnosis (cancer, adenomatous polyp, IBD) was found in 27% (BCR 18 – 37%) of colonoscopies.
CONCLUSION: This study documents a large variation in practice patterns of colonoscopy throughout Europe and will help to design a comprehensive European public health strategy giving access to appropriate colonoscopy facilities, ensuring timely and accurate diagnosis. (SNF No. 3200 – 057244.99).

**STRATEGIES OF PRACTICING PHYSICIANS FOR PRESCRIBING ANTIBIOTICS IN RESPIRATORY TRACT INFECTIONS.** R.S. Wigton[1], C. Darr[2], K. Corbett[2], D. Nickol[3], R. Gonzales[4]; [1]University of Nebraska, Omaha, NE; [2]University of Colorado, Denver, CO; [3]University of Nebraska Medical Center, Omaha, NE; [4]University of California, San Francisco, San Francisco, CA *(Tracking ID #52143)*

BACKGROUND: Although overuse of antibiotics is a major concern, not enough is known about how physicians decide whether to prescibe antibiotics. As part of a controlled study of a community-wide intervention to decrease antibiotic use in respiratory tract infections, we studied what factors influence physicians to prescribe antibiotics in cases of respiratory tract infection.
METHODS: 24 primary care physicians in community practice in Denver, CO each reviewed 20 case vignettes describing patients who presented with symptoms of respiratory tract infections. For each vignette, they answered questions about their diagnosis and therapy. Cases were constructed using a fractional factorial design that allowed analysis of the main effects and first order interactions for the 9 clinical and patient variables.
RESULTS: On average, physicians said they would prescribe antibiotics in 41% of cases. The mean probability of prescribing antibiotics was also 41%, median 35.5%. The main determinant of whether they would use antibiotics was duration of symptoms for over 14 days (43% of total weight). Other variable weights were as follows: temperature (12%), sinus pressure (12%), productive cough (10%), nasal discharge (11%), ill (7%, NS), expecting antibiotics (2%, NS), imminent trip (2%, NS), prior antibiotics successful (1%, NS), $r2 = 0.41$. Individuals differed in their strategies to the extent that each of the clinical variables dominated the strategy of at least one physician.
CONCLUSION: In deciding whether to prescribe antibiotics in cases of respiratory illness, the physicians in this study, on average, put the greatest weight on the duration of the illness. Physicians differed in their strategies, however, some putting greatest weight on variables such as temperature, productive cough or sinus pressure. The variability in physician strategies suggests that changing physician behavior should take account of individual differences in their approach to diagnosis and treatment of respiratory tract infections.

**THE CLINICAL DIAGNOSIS OF INFLUENZA: LISTEN TO THE PATIENT.** R.S. Wigton[1], G.J. Canaris[1], D. Nickol[2], T.G. Tape[1]; [1]University of Nebraska, Omaha, NE; [2]University of Nebraska Medical Center, Omaha, NE *(Tracking ID #52314)*

BACKGROUND: Although there is now effective antiviral treatment for influenza, it is not known whether physician clinical diagnosis is sufficiently accurate to identify patients who should receive treatment. In addition, we don't know physicians' current strategies for distinguishing influenza from other respiratory tract infections.
METHODS: As part of the pilot for a study to develop a prediction rule for the clinical diagnosis of influenza, we prospectively recorded the symptoms and signs of patients who met study criteria for respiratory tract infection in our outpatient clinics in the fall and winter of 2000 – 2002. We asked physicians and patients independently to record which of 26 symptoms and (for physicians) 16 signs were present. Viral culture from nasal washings was done on all patients. We used variable clustering to create indices of correlated symptoms and reduce overfitting. We analyzed both patient symptoms and physician data independently. Symptom cluster scores were derived for each patient for each of 6 clusters of patient-recorded symptoms and 6 clusters of physician-recorded symptoms.
RESULTS: Of 74 patients in the pilot study, 7 had influenza. Agreement between whether the patient reported a symptom and whether the physician reported it was modest (ave Kappa = 0.58). Patient symptom clusters were more accurate than physician clusters in predicting influenza, even when exam findings were included (ROC area = 0.93, 0.84, 0.84). The prediction rule based on patient recorded symptoms was also more accurate than either the physicians' or patients' own diagnosis of influenza.
CONCLUSION: Findings of this pilot study suggest that influenza diagnosis may prove to be predictable from symptoms at presentation and that patient-recorded symptoms are more accurate in predicting influenza than physician-recorded symptoms. This could be due to incomplete histories, missing variables or expectation bias. Development of optimal strategies or prediction rules for diagnosing respiratory tract infections may improve physicians' accuracy and consistency. Such rules would help guide treatment decisions.

**ASSESSING MEDICAL ERRORS RELATED TO THE CONTINUITY OF CARE FROM AN INPATIENT TO AN OUTPATIENT SETTING.** 
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BACKGROUND: The initial follow-up clinic visit after hospital discharge is a frustrating time for both primary care providers (PCPs) and patients. Confusion about discharge plans and medications may put this patient population at high risk for outpatient medical errors. A retrospective study was undertaken to examine the epidemiology of medical errors in this patient population.
METHODS: Seventy participants were randomly selected from among all patients discharged from the medicine service at the Mount Sinai Medical Center (MSMC) between July 2000 and June 2001 and who had subsequently been seen at the MSMC primary care clinic within 2 months after discharge. Using a standardized chart abstraction form the following information was extracted from the inpatient charts: discharge medications, pending test results or scheduled outpatient tests that would require follow-up, and suggested outpatient work-ups. Clinic charts were reviewed in order to assess for the presence or absence of the following categories of medical errors: 1. Medication: The medication list documented at the first post-discharge clinic visit differs significantly from the inpatient discharge medication list. Over-the-counter medications and completed antibiotic regimens were excluded from the analysis. Agreement between raters of a medication error was good with a kappa statistic of 0.73. 2. Test Follow-up: Outpatient tests (e.g., stress test) scheduled by the inpatient provider are not acknowledged or adequately followed up by the outpatient PCP. 3. Work-up: Appropriate outpatient work-ups suggested by the inpatient provider (e.g., colonoscopy for a positive fecal occult blood test) are not adequately implemented and/or followed up by the outpatient PCP.
RESULTS: The patients ranged in age from 24 – 90 (average: 57 years). Sixty-two percent were women, 51% Hispanic, 35% Black, and 9% Caucasian. The average time from hospital discharge to outpatient follow-up was 18 days (range: 1 to 61 days). Of the 70 patients studied, 59% had one or more of the three categories of medical errors. Fifty-two percent of patients had at least one medication error, 12.7% of patients had at least one test follow-up error, and 7.0% of patients has at least one work-up error. The average number of discharge medications was 7.2 for patients found to have a medication error compared with 5.1 for patients without a medication error ($p = 0.001$). Gender, age, race, time to follow-up, and the PCP's number of years of training were not statistically significant predictors of a medical error.
CONCLUSION: Patients recently discharged from the hospital have a high prevalence of medical errors during their initial outpatient primary care visit after discharge. This is especially true for medication errors which we found to occur at a rate of 52%. The clinical significance of these errors on patient outcomes needs to be further investigated.

**RATES AND CORRELATES OF COST-RELATED MEDICATION SKIPPING AMONG MEDICARE BENEFICIARIES. IB WILSON, WH ROGERS, J MONTGOMERY, H CHANG, DG SAFRAN.** 
I.B. Wilson[1]; [1]New England Medical Center, Boston, MA *(Tracking ID #50788)*

BACKGROUND: To inform the current policy debate about whether to provide drug coverage to seniors, we assessed rates and correlates of cost-related medication skipping (CRMS).
METHODS: We surveyed a probability sample of Medicare beneficiaries in 13 states (AZ, CA, CO, FL, IL, MA, MN, NM, NY, OR, PA, TX, WA) in 1998 and again in 1999. We asked "Do you ever skip medications or treatments because they are too expensive?" and compared responses "yes, often" and "yes, occasionally" to "no, never." Independent variables were drug coverage (yes/no), monthly out-of-pocket drug costs ($0, $1 – 24, $25 – 49, $50 – 99, $100 – 199, >$200), premiums, income (> or <$10,000/yr), office visits, number of medications, physical and mental health scores from the SF-36 (PCS and MCS), quality of the physician patient (MD-PT) relationship (relationship factor from Primary Care Assessment Survey), age, gender, race, education, and marital status. HMO/non-HMO status was from administrative data. Using the 1998 data, we performed multiple logistic regression to determine correlates of CRMS. To assess endogeneity bias (e.g., CRMS causing poor health), we examined cross-lagged correlations between CRMS and key independent variables using 1998 and 1999 data. We weighted all analyses for sampling probabilities.
RESULTS: The population (n = 7130) included 60% women, 13% non-whites, 42% with low income, 71% with drug coverage, 21% with out-of-pocket drug costs >$50/month, mean age was 75 years, and 9.5% reported CRMS. Multivariable correlates of higher rates of CRMS (all $p < .0001$) included no drug coverage (OR 1.9), higher out-of-pocket drug costs (OR 6.5 for >$200/m compared with $0/m), low income (OR 2.2), PCS (OR 1.5 for 10 point decrement), MCS (OR 1.5), poor MD-PT relationship (OR 2.7 for bottom quartile compared with top) and greater age (OR 1.3 for 5 yr increment). The adjusted CRMS rates for a low income 65 year-old with out-of-pocket drug costs >$50/m, low MCS and PCS, in the lowest MD-PT relationship quartile, with and without drug coverage were 51% and 67%, respectively. Analyses of cross-lagged correlations ruled out endogeneity bias.
CONCLUSION: Expanding drug coverage for Medicare beneficiaries would substantially reduce CRMS, but even with coverage, certain vulnerable subgroups have relatively high rates of CRMS, including those with poor MD-PT relationships. Physicians should be aware of high risk subgroups and ask patients about CRMS.

**DISEASE SPECIFIC AND GENERIC QUALITY OF LIFE WITH AMBULATORY OUTPATIENT TREATMENT OF CHRONIC KIDNEY DISEASE (CKD).** 
A.W. Wu[1], N.E. Fink[1], J. Marsh[1], K. Kinchen[1], N.R. Powe[1]; [1]Johns Hopkins University, Baltimore, MD *(Tracking ID #51970)*

BACKGROUND: Despite decades of ambulatory treatment of CKD, little is known about longitudinal differences between modalities in health-related quality of life (HRQOL). We examined HRQOL and survival in patients with CKD on hemodialysis (HD) and peritoneal dialysis (PD).
METHODS: Patients were enrolled from 80 US clinics in an incident cohort (the CHOICE Study). At baseline and 12 months later, patients completed an HRQOL questionnaire (the CHEQ) that included the SF-36 and 14 CKD-specific domains. Adjusting for age, gender, race, education and comorbidity (ICED) score, we examined the relation between treatment modality and 1) change in HRQOL scores and 2) change (worse, same, better) in overall health status where worse = worsened HRQOL, death or increase in comorbidity; better = improved HRQOL, transplant or decrease in comorbidity.
RESULTS: Of 928 patients who completed the baseline CHEQ, 585 also completed the 12 month CHEQ; 101 had died and 55 had renal transplant. PD patients were slightly younger, more likely to be white, well-educated, employed and had less comorbidity. Unadjusted and adjusted baseline scores showed better HRQOL for PD in both generic and CKD domains (pain, role emotional, travel, diet, and dialysis access [$p < .05$]). At 1 year, SF-36 scores had improved, while changes were mixed for CKD domains. HD had greater improvements than PD in SF-36 domains (physical, general), but results were mixed for CKD domains (e.g., PD better for finances, HD better for sleep). There was no difference between HD and PD in change in overall health status.
CONCLUSION: For patients beginning dialysis, HD and PD yielded similar HRQOL outcomes at 1 year. Generic HRQOL improved more for HD, but results were not consistent for CKD-specific domains — some were better for PD while others were better for HD. Discussions about the choice of ambulatory treatment for CKD patients should mention trade-offs and elicit individual preferences for specific aspects of QOL.

**FACILITY-LEVEL IMPACT OF VA PROFILING ON CHRONIC DISEASE QUALITY AND PREVENTIVE PRACTICES.** 
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BACKGROUND: While not without controversy, practice and provider profiling of utilization and quality indicators provide enhanced decision support for effective practice management. While some studies point to profiling's potential benefits, little is known about its impact across an entire health care system. We evaluated the relationship between VA adoption of profiling practices and measures of facility performance.
METHODS: We classified the level of profiling at 235 VA primary care practices nationwide using items previously validated among California managed care organizations. We merged (1) facility-level overall and component scores for the Chronic Disease Index (CDI) and Prevention Index (PI), (2) workload (# outpatients, # visits) (VA Outpatient Clinic file), and (3) managed care penetration (HIAA Sourcebook). Bivariate and multivariate analyses were conducted to assess the extent to which profiling was associated with CDI and PI scores, adjusting for facility characteristics such as urban/rural location and academic affiliation.
RESULTS: Profiling methods varied (outpatient prescriptions 81% to hospitalization rates 27%). Profiling was less prevalent in urban centers ($p < .05$), and unrelated to area managed care penetration. VAs with higher-than-average profiling had higher overall CDI scores ($p < .01$), stemming from better diabetic (foot sensation exams, pedal pulses, lower HbA1Cs) and hypertension care (exercise and nutrition counseling) (all $p < .05$). Profiling VAs had higher rates of alcohol, tobacco and colorectal cancer screenings; prostate cancer counseling, and flu shots (all $p < .05$), which contributed to a better overall PI score ($p < .01$). After multivariate adjustment for medical center features associated with performance, adoption of profiling was independently associated with better CDI scores ($p < .05$), but not PI scores, where complexity was the singlemost important predictor ($p < .0001$).
CONCLUSION: Use of practice- and provider-level profiling is associated with better chronic disease quality, regardless of organizational complexity or academic affiliation. With new initiatives to expand profiling, VA managers need to be educated about their potential chronic care benefits. Further work is needed to ascertain why prevention gains are not realized.

**USING BASELINE QUALITY INDICATOR COMPOSITE FOR IMPROVING TRADITIONAL CLINICAL PATHWAYS AND PATIENT SATISFACTION IN A COMMUNITY-BASED HOSPITAL.** 
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BACKGROUND: Clinical pathways such as 1) Pneumonia, 2) Chest Pain (CP/AMI), 3) Congestive Heart Failure(CHF), 4) Transient Ischemic Attack/Cerebrovascular event (TIA/CVA) are increasingly being used by hospital quality improvement teams to improve efficiency through common quality indicators for community-based hospitals as part of a consortium of a managed care organization.
METHODS: 1) *Length of stay*, 2) *door to a particular procedure or medication*, 3) *pathway compliance (goal 80%)*, and 4) *overall hospital satisfaction* were selected as common measurement domains adopted from a participating hospital for analysis over one year through medical chart review by a hospital quality improvement team.
RESULTS: Compliance with the pathways was the greatest in the first two quarters (Q) with a decreases in Q3. The most adherence was observed for the CP/AMI (↓10% below compliance), followed by the CHF and TIA/CVA (↓40%), with the least by Pneumonia (↓51%). Areas for improvement were needed in process indicators for the CHF and the Pneumonia pathway with 1) *door to diuretic* (41 – 77 minutes observed; 30 minutes goal) and 2) *door to antibiotic therapy* (range 88 – 120 minutes; 120 minutes goal). The TIA/CVA pathway met the goal for *door to CT* in less than 1 hour.

| | **Pneumonia** | **CP/AMI** | **CHF** | **TIA/CVA** |
|---|---|---|---|---|
| **Length of Stay(days)** | 3.1-4.0 (Goal <5) | 1.0-2.4(Goal 3) | 3.0-4.7(Goal<4) | 3-4 (Goal 3) |
| **Compliance (%)** | 29-57(Goal 80) | 70-100(Goal 80) | 40-85 (Goal 80) | 40-84 (Goal 3; 4) |
| **Satisfaction** Excellent/ VeryGood/ Good(%) | Overall 81% ; Outpatient Surgery 90%; Inpatient Medicine 79%; Emergency (ED) 76% | | | |

CONCLUSION: Composite measurement information can assist hospitals with identifying areas for improvement, standardization of the steps to care, and in understanding hospital compliance and lower satisfaction scores.

# MEDICAL EDUCATION

### INNOVATIONS IN RESIDENT EDUCATION – ARE COMBINED EMERGENCY MEDICINE AND INTERNAL MEDICINE MORNING REPORT SESSIONS EFFECTIVE?

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BACKGROUND: Morning Report (MR) remains a time honored medical teaching conference held by most residency programs. Given the fact that Internal Medicine (IM) and Emergency Medicine (ER) residents interact jointly in patient care in the emergency setting, as well as on rotations on the general wards and in intensive care units, we decided to study the effectiveness of combined EM and IM resident MR sessions. To date there are no studies of the perceived efficacy of combined MR teaching sessions among residents of these two departments. This survey was conducted to determine and evaluate resident satisfaction with combined MR sessions.
METHODS: There were 12 combined MR sessions. Residents and faculty from both departments participated in these sessions. A 34-item survey was administered to residents at the end of each session. Questions were answered in a multiple choice or a 5-pt Likert scale. Statistical significance was established using a t-test at a nominal alpha level of 0.05. A total of 106 residents (48 EM & 58 IM) completed the survey.
RESULTS: 1. Both groups expressed a high level of satisfaction with these MR sessions. 2. Both groups of residents considered diagnostic work-up and clinical management important. However, EM residents rated diagnostic work-up as a significantly more important teaching goal. 3. Both groups valued an interactive teaching format with the chief resident leading the discussion. 4. Both groups were of the opinion that these sessions enhanced medical knowledge while improving camaraderie between the disciplines. 5. Higher EM ratings were noted for specific teacher traits — enthusiasm, rapport with learners, and knowledge of the topic.
CONCLUSION: There was a high level of satisfaction among the residents with these combined MR sessions. Overall, residents from the two disciplines had similar expectations on a number of aspects for the combined MR. In accordance with the perception that the approach to problem solving is different between the two departments, EM residents placed a higher emphasis on diagnostic work up as compared to IM residents. This interdisciplinary MR collaboration was effective in meeting the learning goals of the residents.

### PERCEPTIONS OF ANDROPAUSE AMONG THE GENERAL PUBLIC AND HEALTH CARE PROFESSIONALS.

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BACKGROUND: Andropause, or male menopause, refers to the natural age-related decline in testosterone in men. Although much debate exists in the literature surrounding andropause, the non-sexual benefits of testosterone replacement therapy are well documented, but as hypothesized in this study, not well known among the general public and health care professionals (HCPs).
METHODS: Two brief surveys were developed: one for the general public and one for HCPs to examine the knowledge and perceptions of andropause and testosterone replacement therapy. Survey participants were from two nonrandom samples of persons calling a medical information line for a testosterone replacement formulation and other medications. Both surveys asked a set of True/False knowledge questions. The general public survey also asked the caller about his/her sources of health-related information and if he/she had ever taken exogenous testosterone. In addition to knowledge questions, HCPs were also asked how often they see patients with symptoms of low testosterone.
RESULTS: Among 266 persons calling the medical information line, 227 were general public callers and 196 (86%) agreed to survey participation. Among 39 HCP callers, 22 (56%) agreed to participate. Of the general public callers, 77% had heard of andropause or male menopause; their most commonly used sources of health-related information were the Internet (49%) and their primary care physicians (43%). Most of the general public callers (56%) had taken exogenous testosterone. Most HCPs (73%) had encountered patients with symptoms of low testosterone in their practice, however 64% reported that their patients rarely or never initiated conversations about low testosterone. Table 1 presents the results of the knowledge questions.
CONCLUSION: The general public callers in this survey appear to be an educated group of consumers using clinical and non-clinical resources for healthcare information. However this sample may represent a subset of the general public who are proactive in researching healthcare information, especially since they have called a medical information line. Overall, the general public's knowledge about the benefits of testosterone replacement therapy was comparable to that of HCPs. Both groups demonstrated misconceptions and therefore a need for education regarding low testosterone as a risk factor for other conditions and the non-sexual benefits of testosterone replacement therapy.

**Table 1. Knowledge Questions: General Public and HCPs with Correct Responses**

| | Correct Response | General Public (N = 196) | HCPs (N = 22) |
|---|---|---|---|
| Testosterone (T) decreases with age in all men | True | 76% | 50% |
| Low T can result in loss of urinary control | False | 12% | 32% |
| Low T is a risk factor for osteoporosis | True | 53% | 55% |
| Low T can result in decreased lean body mass | True | 74% | 77% |
| Low T can result in negative mood | True | 80% | 77% |
| Low T can result in low energy | True | 83% | 91% |
| Low T cannot be treated with medication | False | 87% | 100% |

### PEER EVALUATION OF TEACHING: CURRENT ACTIVITIES, FUTURE DIRECTIONS.

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BACKGROUND: Peer evaluation of written work is an accepted mark of scholarship. While an expanded view of scholarship includes teaching, peer evaluation of educational activities is less often performed. For clinician educators' recognition and promotion, evidence of high quality teaching is essential. Given the importance of teaching, and the need for high quality peer review as one part of the evaluation of teaching, Department of Medicine Chairs were surveyed to assess current activities in peer evaluation of teaching.
METHODS: A letter with two follow up mailings was sent to all 390 Chairs of Medicine in the United States. The Chair or his/her designee was asked if peer evaluation of teaching was performed in their department, and, if performed, would this person be available for a 20 minute structured phone interview. The interview instrument was designed to assess current practices in evaluation, and the uses of the information. Given the low number of completed interviews, descriptive measures were used in the analysis.
RESULTS: After three mailings, 218 responses were received, (56% response rate). 169 institutions (78% of respondents) had no peer evaluation process. Of the 59 who responded yes, 30 were available for a phone interview or completed a faxed survey. The majority of reviews were performed by departmental faculty. One on one, small and large group sessions were observed; over 70% had some orientation to the process, with over 50% using literature based standards. All faculty were evaluated in 50% of cases, otherwise only a subset received peer evaluation. 90% of respondents indicated the individual received the results, and in over 70% of cases, the program director, division chief and/or department chair received the results. Results were used for formative (73%)or summative (63%) feedback, formal evaluation (50%), recognition (50%), allocation of teaching positions (60%), as a needs assessment for faculty development (56%) or as a follow up to faculty development (30%). Areas of evaluation included: knowledge, teaching skills, and quality of the materials. The largest barrier was pressure on faculty time. Generally, one evaluation of one session was done per year, with the total time for evaluation less than two hours.
CONCLUSION: Peer evaluation of teaching, while an integral part of a teacher's evaluation, is not frequently performed. Important information, complementary to that of learners evaluations, is gained in this process. Evaluation data was used for feedback, formal evaluation, recognition, and teaching assignment decisions. Importantly, these observations were part of faculty development efforts as well. Future directions include expanded observations, use of these evaluations in the recognition and promotions processes, and in faculty development programs.

### SURVEY OF THE INFORMATION HABITS OF OUR SURGICAL COLLEAGUES.

R.G. Badgett[1], J.L. Paukert[1]; [1]University of Texas Health Science Center at San Antonio, San Antonio, TX *(Tracking ID #52035)*

BACKGROUND: Although research has measured the frequency and nature of clinical questions and pursuit of their answers among primary care physicians, there is no similar research among surgeons. We surveyed these phenomena among resident and faculty surgeons.
METHODS: We surveyed the information habits of 46 resident and faculty surgeons from a multi-institutional training program who attended a combined surgery grand rounds and award ceremony during March, 2002.
RESULTS: Forty-six surgeons attended the combined conference (121% of the average attendance). 40 questionnaires were returned (87% response rate). Overall, surgeons reported having "one question per one to two patients." This ranged from resident surgeons having 1 question per patient to faculty surgeons having 1 question per 4 patients. Both faculty and residents ranked questions about the role of surgery (indications and choice of procedure) as the most common type of question, followed by diagnostic questions (causes of findings, choice of test). Anatomical questions were the least common.
Printed textbooks were ranked as the most commonly used resource (ranked as a first or second choice by 62% of residents and 63% of faculty), followed by colleagues (ranked as a first or second choice by 57% of residents and 53% of faculty), and then printed material in their pockets (ranked as a first or second choice by 48% of residents and 5% of faculty). The most

common pocket references were Pocket Pharmacopia® (100% of residents and 21% of faculty) followed by the Sanford Guide to Antimicrobial Therapy® (62% of residents and 32% of faculty). 29% of residents and 32% of faculty reported carrying a personal digital assistant at the time of survey.
65% of surgeons reported searching with a computer at least once per week. 45% and 58% of all surgeons reported satisfaction with the quality and speed, respectively, of at least half of their searches. The most commonly used Internet sites were MEDLINE® (58% citing either PubMed®, OVID®, or Grateful Med®), MDConsult® (13%), and MEDSCAPE® (10%).
CONCLUSION: The surgeons surveyed reported a frequency of questions similar to published rates for primary care physicians. Surgeons prefer to use convenient sources of uncertain reliability, such as colleagues, a characteristic also demonstrated by primary care physicians.

**ARE OUR PATIENTS EVIDENCE-BASED?** RG. Badgett[1], C. Rhodes[1]; [1]University of Texas Health Science Center at San Antonio, San Antonio, TX *(Tracking ID #52040)*

BACKGROUND: Medical information on the Internet is proliferating. Many of these sites present information that may not be accurate or reliable. Previous studies have reported patient use of the Internet for medical information. We sought to quantify the frequency and quality of this use.
METHODS: We performed a cross sectional survey of Internet information-seeking habits and health status among 293 patients who attended Internal Medicine clinics that were based in either a community private practice or a university faculty clinic. During the summer of 1998, we measured both the frequency of seeking evidence from the Internet and the assessing for the presence of accepted markers of validity.
RESULTS: Two hundred and ninety patients completed the questionnaire (99% response rate). 59% of patients attended the faculty clinic and 38% attended the community private practice. 66% were women and the median age was 42 years. 70% had a college education and 56% reported good health. Forty percent have access to the Internet at home. Thirty-two percent of patients use the Internet for medical information. Independent predictors of patients who use online medical information were: attending a university faculty practice and having a college education.
Two-thirds of patients reported a habit of noting the original sources of information cited online and the expertise of authors; however, only 24% of patients usually checked the funding of medical Internet sites. Patients used a variety of medical sites, the most common ones were the Centers for Disease Control and Prevention (12%), the National Library of Medicine and MEDLINE (7%), HealthFinder (9%) and the Food and Drug Administration (2%).
CONCLUSION: Patients do consult the Internet. Patients access many sites including ones not designed for lay access. Many patients do not assess the quality of online information, especially the funding of a site. Because patients may be susceptible to medical misinformation from the Internet, physicians should consider simple methods to help patients assess online information. Examples are encouraging inspection of Internet sites for the presence of accepted quality criteria.

**THE CRITICAL INCIDENT REPORT: IS IT USEFUL FOR ENHANCING PROFESSIONAL DEVELOPMENT?** A. Baernstein[1], K. Fryer-Edwards[1]; [1]University of Washington School of Medicine, Seattle, WA *(Tracking ID #52284)*

BACKGROUND: Medical students often make great strides in professional development during Emergency Medicine clerkships, when responsibilities and experiences come quickly. We sought to add an educational intervention that would support students' emerging professional attitudes and behaviors during this four-week required clinical clerkship. The "Critical Incident Report" has been proposed as a method for enhancing professional development. We designed a randomized trial to assess the effectiveness of this technique, as compared to a one-time structured interview with a faculty mentor.
METHODS: Participants included all fourth-year medical students who completed an Emergency Medicine clerkship at a university-based county trauma center between July and December of 2001. Current results are from 4 months of collection (n = 48). Students were randomized to 2 groups with one group completing a "critical incident report," a one-hour writing exercise focusing on positive and negative experiences in the clerkship. Both groups had a half-hour interview with a faculty member. The interviews were tape-recorded and scored along with the essays for depth and breadth of issues addressed.
RESULTS: We found significant differences in the quantity and quality of professional themes discussed by students in interviews as compared to their written work. Students randomized to interviews addressed a mean of 17.3 professional issues per interview, while writers addressed a mean of 7.5 (p <.0001) per essay. Differences existed in the number of 'in-depth' stories offered by talkers (3.1) compared the mean for writers (1.0) (p = .003). In anonymous evaluations completed after the clinical rotation ended, the vast majority of students rated the experience as a whole valuable and helpful for understanding interactions with patients and colleagues. 11% would have preferred just writing, 44% just a discussion, and 40% of students would have preferred writing followed by discussion.
CONCLUSION: While writing a critical incident report elicited many interesting stories and provided reflection time that some students reported to be useful, the one-to-one interviews with a faculty mentor elicited both more comments relating to students' professional development and more in-depth stories, and achieved this in less time. The interviews that reviewed a student's critical incident report did not have more or deeper insights than the interviews that were not preceded by writing. These initial findings suggest that one-to-one interviews are much more effective than writing at eliciting reflection on professional themes, and suggest that the critical incident report may not be a justifiable use of medical students' time. Student and resident education could benefit from these findings.

**OPTIMIZING MEDICAL STUDENT TEACHING FROM INTERNS.** K. Barnard[1], D. Lescisin[1], D.M. Elnicki[1]; [1]University of Pittsburgh, Pittsburgh, PA *(Tracking ID #52477)*

BACKGROUND: Interns spend up to 12% of their time teaching medical students, but receive little instruction on how to teach. We sought to determine the predictors of the effectiveness of intern teaching.
METHODS: Third year students at two medical schools were surveyed at the end of their internal medicine clerkship from 8/00 to 6/01. The survey items included demographic characteristics of interns and students, 16 questions about intern teaching behaviors, and 6 questions about students' preferred learning styles (observation, socratic-type questioning, mini-lecture, looking up answers, presenting a topic). In addition, the students were asked to rate the overall teaching effectiveness of the intern, using a 5-point Likert-type scale (1 = ineffective, 5 = excellent). A forward, step-wise linear regression model was built to determine which of the independent variables predicted intern teaching effectiveness as perceived by the student. Adjusted p-values and percentage of the R2 were calculated.
RESULTS: A total of 269 surveys were completed (79% response rate). The teaching behaviors that were significant in predicting intern teaching effectiveness were: "seemed to enjoy teaching"(p < .002; 57%), "demonstrated a breadth of knowledge in internal medicine" (p < .001; 20%), "observed you elicit physical examination findings" (p = .033; 2%), "asked questions to elicit your reasoning about a clinical problem"(p = .013; 9%), "coached you on how to present patients during rounds" (p = .041; 6%, corrected your mistakes without making you feel belittled" (p = .033; 4%). Altogether, these behaviors accounted for 72% of the variance in the model. Demographic characteristics and learning styles were not found to be significant contributors to the model.
CONCLUSION: The most important predictors of effective intern teaching were selected teaching behaviors that can be classified into the learning constructs of learning climate, evaluation, and feedback. Of these, enjoyment of teaching (learning climate) was the most important predictor of teaching effectiveness. Student-favored learning styles and demographics did not impact the perceived teaching effectiveness. These findings are useful for determining how to improve intern teaching.

**CAN AN ELECTRONIC DATABASE HELP BUSY PHYSICIANS ANSWER CLINICAL QUESTIONS?** D. Blackman[1], A. Cifu[1], W. Levinson[2]; [1]University of Chicago, Chicago, IL; [2]University of Toronto, Toronto, Ontario, Canada *(Tracking ID #51909)*

BACKGROUND: Practicing physicians need to seek answers for clinical questions during the course of patient care but are pressed for time. New electronic databases potentially make finding answers easier. We performed a pilot study to determine whether the use of an electronic database, UpToDate, increases the rate of answering clinical questions.
METHODS: Study sites were 4 community primary care practices affiliated with the University of Chicago. Two sites (4 physicians) were randomized to the intervention of access to/training in use of an electronic database, UpToDate, and two sites (6 physicians) were randomized as controls. All physicians were practicing general internists, in practice a mean of 7 years. A trained interviewer visited each site for 4–5 weeks and questioned each physician following all patient visits regarding questions that the physician desired to answer. One week later the interviewer asked physicians whether they had found answers for questions. Resources used to answer each question and changes made in the physician's approach to care (i.e. clinical decision making) were recorded. We aggregated data for each physician and compared aggregate outcomes between the intervention and control physicians.
RESULTS: We collected data on a total of 678 patient visits. The mean number of questions per visit was 0.21 for the control physicians and 0.18 for the intervention physicians (p≡0.69). Most questions (~85%) pertained to diagnostic and therapeutic concerns. The percentage of questions answered by intervention physicians was 34.3% versus control 18.7% (p≡0.17). Intervention vs control physicians reported that answers led to a change in patient approach 35% vs. 19.5% (p≡0.23). Resources used most by control physicians were medical textbooks (10.7% of questions), computerized literature searches (e.g. Medline) (6.4%), information handbooks (e.g. Physician's Desk Reference) (2.9%), discussion with colleagues (2.9%), and use of medical websites (2.9%). None of the control physicians used electronic databases. Resources used most by intervention physicians were electronic databases (almost entirely UpToDate) (50%), medical textbooks (13.8%) computerized literature searches (12.5%), and discussion with colleagues (6.7%). The only statistically significant difference in resource use between the two groups was use of electronic databases (p < 0.001).
CONCLUSION: Providing access and training in the use of an electronic database significantly increases its use. Further, use of the electronic database was associated with trends toward answering more questions and more answers leading to a change in clinical decision making. Though a larger study would be needed to evaluate this more accurately, our results suggest educational databases could provide valuable assistance to physicians in answering more of their clinical questions and in providing answers meaningful to clinical decision-making.

**SURVEY OF PRIMARY CARE RESIDENCY GRADUATES: PERCEPTIONS OF THEIR TRAINING.** S.L. Brandenburg[1], L.J. Adams[1], M. Blake[1]; [1]University of Colorado Health Sciences Center, Denver, CO *(Tracking ID #46804)*

BACKGROUND: The primary care track of the internal medicine residency training program began in 1978. In 1996, the curriculum was revised to better reflect the changing environment of primary care practice. Curricular innovations included scheduling each primary care residency class for two simultaneous ambulatory rotations during each year. This allowed the development of a weekly half day curriculum addressing important topics in three curricular domains: psychosocial (i.e., communication, cultural competency); professional development (i.e., health services research, ethics, evidence based medicine); and practice management (i.e., managed care, job search skills).
METHODS: We surveyed 76 physicians who completed their primary care residency between 1982–2000. They ranked specific skills, competencies and experiences based on their current assessment of importance and how well they were prepared during residency. Importance was

rated on a three-point scale (very, somewhat, not important); preparation was rated on a three-point scale (excellent, adequate, poor). A response was received from 49 graduates (64.5%) including 18 post-1996 graduates.
RESULTS: 71% of graduates did not pursue fellowship training. Of those who did, most were in areas such as general internal medicine, geriatrics, and endocrinology. 79% reported caring for populations they describe as medically underserved. When we compared pre-1997 graduates to the more recent graduates, the following variables were significant: Those who graduated pre-1997 were more likely to say training in hospice care ($p < 0.001$), informatics ($p = 0.001$), research ($p = 0.013$), and managed care ($p = 0.029$) was poor. Those graduates 1997 – 2000 were more likely to say the training in cost-effective care ($p < 0.01$) and evidence-based medicine ($p = 0.026$) was excellent. Those recent graduates were also more likely to think job search skills were not important ($p = 0.042$).
CONCLUSION: The new curriculum appears to have effectively addressed emerging issues in primary care training. Not surprisingly, significant differences were reported in newer content areas such as managed care, informatics, evidence-based medicine, and end-of-life care, addressed in the 1996 curriculum revisions. These areas also reflect the core competencies developed by the Accrediting Council of Graduate Medical Education (ACGME) such as practice-based learning and improvement; interpersonal and communication skills; professionalism; and systems-based practice. Job search skills were added as part of the 1996 curriculum revision and have been well received by all participating primary care residents. Perhaps, they now undervalue this aspect of training because they easily found employment following residency completion. We plan to survey the post 1997 categorical residency graduates in order to assess their views of the curriculum. This information will be useful as we make plans to address the ACGME competencies for all residents.

### EVALUATION OF INTERNAL MEDICINE RESIDENTS: DOES GENDER BIAS EXIST?

R.S. Brienza[1], E.S. Holmboe[1]; [1]Yale University School of Medicine, New Haven, CT *(Tracking ID #51615)*

BACKGROUND: Faculty educators are required to evaluate and document resident performance at the end of each clinical rotation. Many residency programs use the American Board of Internal Medicine (ABIM) 9-point rating scale to document the level of performance. Previous work suggests that a gender bias may exist in the performance ratings of residents by faculty. The objective of this analysis was to examine whether the gender of the resident or faculty affected performance ratings of residents on a general medicine ward rotation.
METHODS: This study is a secondary analysis of data from a prospective randomized controlled trial examining the effectiveness of a focused educational intervention on resident evaluations from faculty in two internal medicine residency programs. We first performed bivariate analyses of scores on the evaluation forms across competency domains (patient care, knowledge, humanism, professionalism, clinical judgment, teaching and overall competence) for faculty-resident gender pairs. Logistic regression models were then performed to control for intervention status, faculty gender, and for clustering using the faculty member as the unit of analysis. A $p < .05$ was considered significant.
RESULTS: A total of 88 faculty, 70 men and 18 women, provided a total of 270 resident evaluations during the study period for 161 total residents, including 61 female residents. Controlling specifically for faculty gender, the mean scores for female residents across the domains of teaching, clinical judgment, medical knowledge, clinical skills, medical care, and overall clinical competence were significantly lower than those received by male residents (all $p < .05$). Using the resident-faculty pair as the unit of analysis revealed that both male and female faculty evaluate female residents significantly lower than male faculty evaluate male residents in the domain of teaching ($p < .05$). Although not significant, the scores for female residents (by both male and female faculty evaluators) were lower in all other domains compared to the male faculty/male resident reference group.
CONCLUSION: Our results from a randomized controlled trial suggest the presence of gender bias in the evaluation of residents rotating on a general medicine service. However, unlike previous studies, female residents were more likely to receive lower scores across multiple content domains than male residents, independent of faculty gender. Therefore, the factors contributing to gender bias within resident performance evaluation appear to be complex and not only a result of resident-faculty gender discordance.

### INTERNAL MEDICINE RESIDENTS' PERSPECTIVES ON WOMEN'S HEALTH.

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BACKGROUND: The explosion of expanding research on the effects of gender on health and illness has created a new challenge for medical educators. Many academic institutions, however, are struggling with the definition, format and integration of women's health training into internal medicine residency programs. Increasing evidence reveals that women's health medical education is unevenly and unsystematically distributed across programs. Perhaps even more importantly, however, may be variable understanding by learners of goals, objectives and signficance of women's health curricula. The objective of this study was to obtain attitudes and beliefs of internal medicine residents about women's health.
METHODS: We conducted five focus groups between May 2000 and April 2001, each consisting of 5 – 8 internal medicine residents. A standard set of questions to guide the groups was developed. Major themes included: What is women's health? What content areas does expertise in women's health include? How could training in women's health be improved? An "editing" style of analysis was used to identify significant themes across the focus groups.
RESULTS: Themes about the definition of women's health included: emphasis on screening/prevention and psychosocial issues, different physiology, whether research on men applies to women, fertility issues and how disease may affect women differently from men. Themes about why there has been so much emphasis on women's health included: understudied in past, more women in medicine and research careers, female patients demanding more complete care and women being more proactive in their medical care than men. Themes of areas of content expertise in women's health included: to be empathic and aware of "women's issues", to be knowledgeable about prevention and screening for women, and to be attuned to psychosocial stressors important to women. Content areas that residents would ask a women's health expert about included: breast cancer, gynecologic cancers, fertility, menstrual disorders, contraception, HRT and incontinence. Residents' preferred integration of gender specificity throughout all education, highlighting gender differences compared to focused education on women or men.
CONCLUSION: Our results from analysis of focus groups reveal important insight for women's health medical educators. These include: varied opinion of the definition of women's health including, a focus on prevention and screening, psychosocial issues and continued emphasis on gynecologic disorders and reproductive function. In addition, the role of faculty with additional training or expertise in women's health was largely focused on reproductive health and gynecologic malignancies. Finally, residents preferred integration of gender differences within existing curricula compared to sex specific training.

### COMPARING PHYSICIAN ROLE MODELS' SELF-PERCEIVED TEACHING EFFECTIVENESS TO THEIR RESIDENT TEACHING EVALUATIONS.

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BACKGROUND: Role models are key to many aspects of medical education. Several studies have explored the attributes of attending physician role models but none have compared how their self-perceived teaching effectiveness correlates with their resident teaching evaluations. We sought to determine if self-perceived teaching effectiveness of role models differed from attending physicians not selected as role models and how these self-assessments related to resident teaching evaluations.
METHODS: Each rotation, residents complete a previously validated 15-item Teaching Evaluations Instrument (TEI) on their attending and scores are maintained in a searchable database. TEI items include questions about learning environment and teaching strategies. A confidential self-assessment questionnaire, that included the TEI items, was given to the 164 teaching attendings in the Department of Internal Medicine. Nearly half of these attendings (42%) were previously identified as resident role models, but were unaware of this during the study. Those who were selected as role models by more than 5 residents were termed "super role models". Correlation coefficients were computed between resident ratings of attending teaching skills and attendings' self-assessments.
RESULTS: Eighty-four attendings (51%) returned the questionnaire without a significant difference in the response rate based on role model status. Resident ratings had a significant relationship to attendings' self-assessment for the item "asks questions that promote learning" for each group ($r = .31$ to $.59$, $p < .01$). Additionally, the self-assessment of attendings not selected as role models was significantly related to residents' ratings on "organizes time" and "explains actions". Role models that were not "super role models" had self-assessments that were significantly related to "explains actions" ($r = .45$, $p = .007$). "Super role" models provided self-assessments that were significantly related to "promotes independent learning" ($r = .72$, $p = .003$) and "provides autonomy" ($r = .64$, $p = .008$).
CONCLUSION: Attendings' self-assessments, in general, are not consistent with resident evaluations. The items that correlate between the two sources of teaching scores, however, do differ for role models and other physicians. The data suggest that "super role" models provide independent learning and autonomy. The important qualities of a role model may have more to do with supporting professional development and fostering confidence than having good teaching methods alone.

### ATTITUDES OF MEDICAL STUDENTS TOWARD WORKING WITH DYING PATIENTS.

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BACKGROUND: With recognition within the medical community of the need for better palliative care at the end of life and increased public interest in dying a 'good death', there is a growing need for more practitioners dedicated to providing excellent palliative care. The purpose of this study is to describe medical students' attitudes toward working with dying patients and identify the factors which affect these attitudes.
METHODS: 1st year, 2nd year and graduating students at the University of Pittsburgh were surveyed regarding their knowledge, attitudes and training in end-of-life care during the spring and summer of 2001. Surveys included 7 4-point Likert scale questions selected from the Attitudes about Care at the End of Life Scale to elicit students' attitudes toward working with dying patients. Demographic information collected included gender, age, race, religion, importance of religion, personal experience with death and social versus technological orientation toward medicine.
RESULTS: Overall response rate was 382/443 (86%). Respondents were 31% 4th year, 35% 2nd year and 34% entering students; 48% male; 70% white, 7% black, 15% Asian, 8% other; 31% ≤23 yo, 31% 24 – 25 yo, 21% 26 – 27 yo, 17% >27 yo. 67% had experienced the death of a close family member or friend. 60% characterized themselves as more inclined to the social and emotional aspects of medicine as compared to the technological and scientific. We found no differences in attitudes based on race, and differences on only a single question based on gender (more women than men felt psychological suffering can be as great as physical suffering, $p = 0.013$) or previous experience with death (those experiencing a close death agreed more strongly that it is possible to give a terminal diagnosis and maintain hope, $p = 0.018$). 4th year students dreaded dealing with dying patients' family members' emotional distress less ($p = 0.004$) and felt less guilty about patient deaths ($p = 0.008$). Students' self-classification as social and emotional versus technological and scientific predicted differences on 5/7 items. Socially/emotionally inclined students dreaded dealing with family less ($p = 0.047$), believed physicians have a responsibility to provide bereavement care to family members ($p = 0.031$), thought it possible to maintain hope in the face of a terminal prognosis ($p = 0.043$), viewed depression as treatable in terminally ill patients ($p = 0.055$) and believed psychological suffering can be as severe as physical ($p = 0.012$).
CONCLUSION: Students who viewed themselves as more inclined to the social and emotional aspects of medicine were more likely to have attitudes that favor working with patients at the end of life. We believe that other personality characteristics may be helpful in

identifying students suited for palliative care careers early in their training. Further research using standardized personality inventories is needed.

**MENTORING IN INTERNAL MEDICINE RESIDENCIES: A NATIONAL SURVEY OF PROGRAM DIRECTORS.** A. Castiglioni[1], L.M. Bellini[1], J.A. Shea[1]; [1]University of Pennsylvania, Philadelphia, PA *(Tracking ID #46066)*

BACKGROUND: A growing body of literature indicates that having a mentor during residency is linked to greater career satisfaction and academic success. Little is known about how mentoring is implemented among internal medicine residencies. Our objectives were to 1) assess internal medicine program directors' attitudes toward mentoring in residency, 2) determine the percentage of residencies with formal mentoring programs (defined as a structured program to provide mentoring for residents), and 3) describe the formal mentoring programs.
METHODS: A mail survey was conducted of program directors of all 391 accredited internal medicine residency programs in March 2001. The instrument included 26 questions on program demographics, attitudes towards mentoring in residency and the prevalence and characteristics of formal mentoring programs for residents. Two additional mailings were sent to non-respondents.
RESULTS: Among the 227 respondents (60.4% response rate), 67% were university- based or affiliated. The median program size was 40 residents. Overall, program directors demonstrated favorable attitudes toward mentoring in residency. On six attitude questions, 60% of program directors had a mean higher than 4 (using a five-point scale, with five indicating maximal support). If designing a formal mentoring program, 89% of program directors would include individual mentoring, 57% would include regularly scheduled meetings, and 36% would include evaluations by mentors. Forty nine percent of residencies had formal mentoring programs for residents. The programs had existed for a median of five years. Of these formal mentoring programs, 96% use individual mentoring and 20% use group or peer mentoring. Features present in only a minority of programs include regularly scheduled meetings (31%), a curriculum (11%), feedback from residents about the mentoring program (28%), faculty development for mentors (15%) and teaching credit for faculty mentors (25%). With respect to designation of mentors, 50% of programs assign mentors, 18% have residents choose their mentors and in 31% it is a combination of assignment and selection. We found no relationship between having a formal mentoring program and program demographics or number of residents going into fellowship. However, programs that have a formal mentoring program for residents are slightly more likely to be university-based ($p = 0.05$) and to have a formal faculty-mentoring program in their department ($p < 0.001$). Only 54% of program directors are happy with their mentoring program.
CONCLUSION: Internal medicine program directors favor mentoring during residency. Half of the internal medicine residency programs have a formal mentoring program for residents. These programs are quite diverse but in general they are largely unstructured, loosely monitored and underevaluated. There is a need to further define the purposes of and curricula for institutionalized mentoring programs.

**DO RESIDENT HOSPITAL DUTIES ADVERSELY INFLUENCE PATIENT SATISFACTION IN CONTINUITY CLINICS?** T.S. Caudill[1], D.R. Barnett[1], P.F. Bass[1], C.H. Griffith[1], J.F. Wilson[1]; [1]University of Kentucky, Lexington, KY *(Tracking ID #52248)*

BACKGROUND: Little is known of the determinants of patient satisfaction in the medicine resident continuity clinic setting. It has been anecdotally observed that residents on time-intensive hospital rotations are distracted while in continuity clinic (phone calls, pages, etc.). We hypothesized that these distractions may interfere with resident focus on patients during clinic and, consequently, patient satisfaction. The purpose of this study is to assess the influence of outside resident pressures on their continuity clinic patient satisfaction.
METHODS: Internal medicine residents are scheduled for two continuity clinics each week, staffed by teaching faculty from the General Medicine Division. Over a 3-month period, residents were asked each clinic day to rate on a 5-point scale whether they felt pressured by other commitments during their clinic. Their patients also completed an eight-item questionnaire the same visit, rating a variety of satisfaction measures, their waiting time before seeing the resident and their continuity status (whether the patient had seen the resident before). Multiple regression approaches assessed the association of patient satisfaction with resident pressure, controlling for patient waiting time, continuity and resident post-graduate training year.
RESULTS: Four hundred and fourteen patient encounters were assessed. Mean patient satisfaction for all encounters was high, 9.5 + 1.1 (10-point scale, 10 = excellent). The mean resident pressure rating was 2.9 (5-point scale, 5 = highest). Independent predictors of decreased patient satisfaction were increased waiting time ($F = 14.92$, $p < .0001$), degree of resident continuity ($F = 15.34$, $p < .0001$) and increased resident pressure from other commitments ($F = 4.99$, $p = .03$). Interestingly, patient satisfaction was highest for interns vs. upper level residents, especially when waiting time was long (9.8 vs. 9.4, $p < .01$).
CONCLUSION: Resident pressure from competing hospital duties is associated with decreased patient satisfaction in their continuity clinic. Effective interventions to reduce resident pressure may improve patient satisfaction in resident continuity clinics. Further study is needed to identify the effect of reducing outside pressures for residents while in continuity clinic and to identify factors that affect patient choice of teaching versus non-teaching clinics for their primary care.

**CAREER AND PERFORMANCE OUTCOMES OF INTERNAL MEDICINE RESIDENTS IN AN ACCELERATED PROGRAM.** L.L. Chang[1], M.S. Grayson[1], P.A. Patrick[1], S.L. Sivak[2]; [1]Saint Vincents Hospital, New York, NY; [2]Albert Einstein Medical Center, Philadelphia, PA *(Tracking ID #50690)*

BACKGROUND: To determine career and performance outcomes of trainees in a categorical Internal Medicine residency program to those in an innovative "six-year" program. This program, provisionally approved by the American Board of Internal Medicine, allows selected fourth year students to obtain credit for their first year of residency while completing requirements for the MD degree, thereby reducing length of total training time to six years. Criteria for selection included academic excellence at New York Medical College, the affiliated medical school, and an expressed interest in a career in General Internal Medicine.
METHODS: Study subjects were graduates of the Saint Vincents Hospital Internal Medicine Residency Program for the period 1995-2000 and included 97 traditional categorical residents and 14 six-year residents. Subjects were also sent a brief survey that obtained demographic data and queried postgraduate career choices. Outcome measures included Internal Medicine Board Exam (IMB) pass rate, Intern CEX, monthly attending evaluations, and yearly in-service exams. Results for the two groups were compared using either unpaired t-test or contingency table analysis.
RESULTS: Performance data was available for 100% of the residents. Traditional and six-year residents demonstrated no significant difference in IMB pass rate ($p = 0.73$). CEX and in-service exam mean scores also showed no significant difference ($p = 0.81$, $p = 0.80$ respectively). Monthly attending evaluations were averaged over each year with no significant difference in values for PGY-1, 2, 3 ($p = 0.45$, $p = 0.95$, $p = 0.39$ respectively). There was a 57.6% response rate to the survey and six-year residents were more likely to be in General Internal Medicine ($p = 0.04$) and in a private practice setting ($p = 0.008$).
CONCLUSION: Although participation in the six-year program decreased total training time, it was not associated with any significant difference in performance measures when compared to a traditional categorical program. Residents of the six-year program showed an increased likelihood to enter practice in General Internal Medicine. Therefore, the six-year program, jointly sponsored by Saint Vincents Hospital and New York Medical College, successfully increased the number of trainees entering generalist practice a year earlier, while maintaining academic standards.

**DEPRESSION AND ANXIETY IN MEDICAL RESIDENTS: BEFORE AND AFTER THE SEPTEMBER 11TH.** C. Cirino[1], H. Burke[1], K. Roth[1], J. El-Bayoumi[1]; [1]George Washington University, Washington, DC *(Tracking ID #52162)*

BACKGROUND: The September 11, 2001 attacks had a major impact on the U.S. population. We used a validated instrument, the Brief PHQ, to measure depression and anxiety in Internal Medicine residents two months after the September 11th attacks and we asked the residents to also assess their psychological health before the September 11th attacks.
METHODS: There were 97 Internal Medicine residents in the training program and 72 residents anonymously filled out the three section questionnaire. The first section consisted of demographics including age, gender, resident post-graduate year, marital status and place of origin. The second section assessed current psychological health and the third section assessed psychological health prior to the September 11th attacks.
RESULTS: Before September 11th 5.7% of the house staff were depressed, 17% had one or more depressive symptoms but not major depression, and 7.1% met the criteria for anxiety/panic disorder. There was a 75% increase in the rate of depression after the September 11th attacks, from 4 to 7 residents, a 50% increase in depressive symptoms, from 12 to 18 residents, an 80% increase in anxiety/panic, from 5 to 9 residents, and the mean symptom score for the residents with major depression increased from 12.8 to 14.
CONCLUSION: There were surprisingly high levels of depression and anxiety present in residents before September 11th and these levels increased dramatically after the attacks. This is the first study of external-to-the-residency causes of depression and stress. Depression negatively affects a resident's psychological well-being, their education, and their clinical performance. Therefore, it is important for medical residency programs to identify and help those residents at risk for, or are suffering from, depression or anxiety.

**PROCESS AND OUTCOME EVALUATION OF A COURSE TO PROMOTE CLINICAL RESEARCH.** A.L. Hull[1], H.L. Copeland[1]; [1]Cleveland Clinic Foundation, Cleveland, OH *(Tracking ID #51223)*

BACKGROUND: Academic Medical Centers have been challenged to develop and implement clinical research training programs to meet the unmet needs for skilled physician investigators to address the critical link between advances in basic biomedical and behavioral science and innovations in medical practice. In January, 2000 we introduced a series of courses for physician staff and advanced physician trainees to promote clinical research. The 18-week introductory course is designed to assist physicians developing a research idea into a written grant application. The course emphasizes working with a mentor, clarifying the research question, focusing literature searches, research design, biostatistical consultation, ethical and legal principles, grant writing, and culminates with a mock NIH-type review of the proposals. We present the results of the first two cohorts completing the program.
METHODS: The course was evaluated with a pre-post self-assessment questionnaire completed on the first and last session and an interview conducted 12 – 18 months after the end of the course. T-tests and ANOVAs were used to calculate differences across time and between groups (fellows/faculty, time in course). Qualitative content analysis was used to identify major categories in the responses to the interview questions.
RESULTS: Thirty-seven physicians and one PharmD were in the first two cohorts. Six fellows, the PharmD, and 16 faculty members (60%) were interviewed. The participants significantly increased in their pre-post self-assessment ($p = .005$). Interest in research significantly increased from before to a year after the course ($x = 7.6$ to 8.1 on 10-point scale, $t = 2.49$, $p = .022$). Though not statistically significant, participants published more papers and abstracts and spent more time on research activities across the years. There was a trend for those with mentors to spend more time, submit for more funding, and publish more abstracts across the years. Participants with the highest attendance reported the most confidence in designing research projects ($x = 8.0$), with the lowest attendence in the middle ($x = 7.3$) and moderate attendence the least confident ($x = 5.6$) ($F = 8.04$, $p = .003$). Fellows and faculty both felt that the most helpful aspects of the course were the writing, reviewing proposals, reviewing study design, and gaining contacts. Fellows were more confident after the course than faculty in their ability to design a research project ($t = 2.61$, $p = .017$). Faculty identified time, lack of support staff, mentorship, and clinical requirements as major barriers to research. Fellows identified time, lack of funding, and lack of faculty support and mentor time as major barriers.

CONCLUSION: Overall participants felt the course was worthwhile. Interest in research increased after participation; over time this may result in significant increases in papers published and funding obtained. Full attendance in the course appears to provide more benefit than moderate attendance. Barriers outside of the course need to be addressed to fully promote clinical research.

**IMPACT OF TEACHING SCREENING AND BRIEF ALCOHOL COUNSELING IN PRIMARY CARE RESIDENCY PROGRAM.** J.B. Daeppen[1], N. Bertholet[1], J. Leutwyler[1], I. Chossis[1], F. Macheret Christe[1], R. Gammeter[1], J. Besson[1], A. Pecoud[2]; [1]Alcohol Treatment Center, Lausanne, Switzerland; [2]University Primary Care Center, Lausanne, Switzerland *(Tracking ID #50155)*

BACKGROUND: Brief alcohol counseling (BAC) has been shown to reduce alcohol use and related problems in hazardous drinkers. Efforts should be undertaken to implement BAC in everyday medical practice. This study first assesses the effectiveness of teaching screening/BAC to residents in primary care.
METHODS: A double-blind study of eight residents was conducted in which four completed a 2-hour standardized screening/BAC training session, and four served as untrained controls. At the same time, 61 hazardous drinkers, as defined by the World Health Organization, were identified (26% of a representative sample of primary care patients). Six-month later, 59 (96,7%) of them completed a questionnaire about the screening/BAC practices of residents.
RESULTS: The trained residents were more likely than the untrained residents to assess both drinking frequency (53,1% vs. 18,5%, chi-square = 7,50, $p < .01$) and quantity (53,1% vs. 14,8%, chi-square = 9,38, $p < .01$) among hazardous drinkers, and more often gave information about safe drinking limits (37,5% vs. 11,1%, chi-square = 5,38, $p < .05$). No group differences were observed in drinking patterns, nor in the practice of other BAC components.
CONCLUSION: These data suggest that a single 2-hour screening/BAC training session increases residents' use of screening for hazardous drinking and providing safe drinking limits information. This limited training, however, may be insufficient to implement full BAC or to influence alcohol use.

**POORLY TRAINED FOR CHRONIC CARE: A NATIONAL SURVEY OF FAMILY PHYSICIANS, INTERNISTS, PEDIATRICIANS, AND SURGEONS.** J. Darer[1], W. Hwang[1], H. Pham[1], G. Anderson[1], E.B. Bass[1]; [1]Johns Hopkins University, Baltimore, MD *(Tracking ID #51982)*

BACKGROUND: More than 100 million Americans have one or more chronic diseases, but medical training may not prepare physicians to provide chronic care. We sought to evaluate physician perceptions regarding the adequacy of their chronic illness training and the effects of medical training on their attitudes toward care of persons with chronic conditions; and to assess how these perceptions differ by physician specialty.
METHODS: Cross-sectional survey by telephone interview of a national random sample of physicians between 11/00 and 6/01 who had ≥ 20 hours of patient contact per week. Of 1905 eligible physicians, 1236 (65%) responded including 270 family or general practitioners (FPs), 231 internists, 129 pediatricians (PEDs), 335 non-surgical specialists, and 271 surgeons. We asked about adequacy of chronic disease training in 10 competency areas during medical school and residency and effects of training on attitudes toward care of persons with chronic conditions.
RESULTS: Most physicians reported that chronic disease training was less than adequate for 10 competencies including geriatric syndromes, pain management, nutrition, developmental milestones, end-of-life care, psychosocial issues, patient education, assessment of caregiver needs, coordination of home and community services, and interdisciplinary teamwork (49–62% of FPs, 65–72% of internists, 57–74% of PEDs, 58–67% of non-surgical specialists, and 61–68% of surgeons). After controlling for physician characteristics, FPs were more likely ($p < .05$) to report adequate training in 7 of 9 competencies when compared to internists; and 2–4 competencies when compared to PEDs, non-surgical specialists, or surgeons. Most physicians reported that training had a positive effect on their attitudes toward care of the chronically ill including the ability to care for patients without being able to cure them (70.1%), and the ability to make a difference in the lives of patients with chronic illness (80.3%).
CONCLUSION: Medical training for chronic disease care is perceived to be inadequate for the demands of current practice for specialists as well as primary care physicians, and especially for internists. Medical schools and residencies may need to modify curricula to meet current and future demands of patients with chronic illness.

**CAN WEB-BASED ABSTRACT SUBMISSION ATTRACT ASSOCIATE MEMBERS TO SGIM?** J.K. Dave[1], E. Rouf[1], C. Meserve[1], M.D. Schwartz[1]; [1]New York University, New York, NY *(Tracking ID #51971)*

BACKGROUND: Electronic submission has transformed the process of abstract submission. The Society of General Internal Medicine (SGIM) used regular mail as the only method of abstract submission until 1999 when web-based submission was introduced, while the American College of Physician (ACP) still accepts abstracts only by mail. We studied the effect of web-based submission on numbers of abstracts submitted to the annual meetings of SGIM and ACP.
METHODS: We collected data from SGIM and ACP on abstract submission between 1997–2001. We calculated the change in submission rates over this time period. Change in submission rate between 1998 –1999 was explored to assess the immediate impact of web-based submission. Submissions were categorized as clinical vignettes and scientific abstracts.
RESULTS: Over the 5 years, SGIM had a 69% (519 to 879) increase in total abstract submissions while ACP submissions increased by 39% (1009 to 1400). For SGIM the number of abstracts per member increased from 1 per 5 to 1 per 3. Clinical vignettes increased by 423% for SGIM compared to a 45% increase for ACP. Scientific abstracts increased by 37% for SGIM compared to an 18% increase for ACP. Also over these 5 years, there was a 5% increase in the total number of SGIM members while the number of associate members rose by 29% from 338 to 436. SGIM associate membership peaked at 460 in 1999 when web-based submission was introduced. From 1998 to 1999 Clinical vignettes increased by 92% for SGIM (77 to 148) compared to a 23% increase for ACP (878 to 1079).
CONCLUSION: Since it introduced electronic abstract submission, SGIM had a greater proportionate increase in abstracts submitted compared to ACP. Vignette submissions increased more than scientific abstracts. The temporal association of increased vignettes submission and associate membership in SGIM suggests the possibility that web-based submission attracted associate members to the organization.

**THE RELIABILITY AND PREDICTIVE VALIDITY OF THE AMERICAN BOARD OF INTERNAL MEDICINE MONTHLY EVALUATION FORM.** S. Durning[1], L.J. Cation[2], J.L. Jackson[3]; [1]Uniformed Services University of the Health Sciences, WPAFB, OH; [2]Morton, IL; [3]Uniformed Services University of the Health Sciences, Bethesda, MD *(Tracking ID #52104)*

BACKGROUND: The American Board of Internal Medicine Monthly Evaluation Form (ABIM-MEF) is a global evaluation form for determining resident clinical competence. In-service training examinations are commonly used to help residents and programs prepare for the ABIM Certifying Examination. Our purpose was to assess how valid and reliable the ABIM monthly evaluation forms and In-service training examinations are in predicting resident performance on the ABIM certifying examinations.
METHODS: We reviewed completed ABIM-Monthly Evaluation Forms for all residents graduating from Wright-Patterson Medical Center from 1990–1999. For each resident, mean scores for each ABIM-MEF section were calculated. Internal reliability of the monthly evaluation forms was determined by calculating Chronbach's alpha as well as with exploratory factor analysis with varimax rotations. Pearson correlation coefficients were used to assess the strength of the correlation between the differing domains of the monthly evaluation forms as well as with In-service and ABIM test scores.
RESULTS: There were a total of 71 residents averaging 11 ABIM-Monthly Evaluation Forms completed per year. There was no evidence of grade inflation over the 10-year study period. The monthly evaluation forms had a Chronbach's alpha = .9630. Factor analysis found the monthly forms collapsed into 3 domains: Knowledge, Humanism and Clinical Skills. Monthly questions from the knowledge domain showed significant improvement ($p < 0.0001$ for all questions) from month to month during the 12 months of evaluation as well as each year as residents progressed from internship to the PGY-2 and PGY-3, but questions on humanism and procedural skills only improved between internship and PGY-2 and did not improve over the 12 months of any year. Overall clinical judgment, medical knowledge and problem definition had a modest ability to predict ABIM results (with Pearson's correlations of 0.63, 0.62 and 0.62). In contrast, humanism and clinical procedural skill questions had little discriminative ability. In-service training examinations did slightly less well in predicting ABIM results, with correlations of 0.56 (PGY-2 in-service exam) and 0.59 (PGY-3 in-service exam).
CONCLUSION: Our study suggests that the ABIM-MEF has a high degree of reliability. There was a gradual improvement in clinical knowledge scores each month and over the 3 years, which one would expect if the residents were improving over time. Factor analysis suggests that raters are evaluating residents in 3 broad domains: medical knowledge, humanism and procedural skills. Medical knowledge ratings had a moderate ability to predict results on in-service and ABIM tests, explaining about 36% of the variation in resident scores. It appears that the ABIM and in-service exams are not assessing humanism, at least as reflected by the resident ratings in this domain.

**HOW CAN WE HELP TO AVOID PRESCRIPTION ERRORS?** C. Fallab Stubi[1], B. Favrat[1], D. Iorillo[1], M. Burnier[1]; [1]Medical outpatient clinic, University of Lausanne, Lausanne, Switzerland *(Tracking ID #51499)*

BACKGROUND: Preventable drug-related problems have a direct effect on mortality and morbidity and induce important additional costs to society. In ambulatory practice, errors of medication occur not only when patients misuse the prescribed drug but also when patients fail to receive medication as needed. Physicians and pharmacists should focus their attention on inappropriate drug prescription to prevent and reduce related mortality and morbidity. The purposes of the study were 1) to determine the nature and the frequency of inappropriate prescriptions, 2) to evaluate the contribution of the community pharmacist to identify prescription errors, 3) to evaluate the impact of prescription-writing teaching to physicians.
METHODS: In this prospective study, the pharmacists reviewed all non-printed prescriptions presented to the pharmacy by the patients over a three- month period. The pharmacist notified the number and the nature of prescriptions that he could not clarify without a phone contact with the prescriber. Then, the prescriptions were modified accordingly. At the end of this period, the pharmacist gave a two-hour lesson about prescription writing to physicians. An additional three-month period was performed to assess the impact of the course.
RESULTS: 1766 prescriptions were analyzed before and 1459 after the training lesson. The incidence of modifications of prescription was 6.5% (114 cases) before the course and 3.6% (53 cases) after teaching (OR = 1.83, CI 95% : 1.30–2.59, $p < 0.001$). The main reasons of the pharmacists' interventions were dosage errors or omissions (1.4% vs 1.6%, p = ns), erroneous medicine prescribed (0.8% vs 0.3%, p = ns), wrong posology (0.6% vs 0.4%, p = ns), not refundable drugs (1.1% vs 0.3%, p = 0.01), forgetting to prescribe a medicine (0.6% vs 0.1%, p = ns), interactions or adverse effects (0.6% vs 0.1%, p = 0.06).
CONCLUSION: Errors in handwriting drug prescription do occur. The community pharmacist plays an important role in detecting these errors. The frequency of mistakes was substantially lower when prescribers have been instructed on the right manner to write a prescription and sensibilised to the potential risk of incorrect prescription in ambulatory practice. However, dosage and posology errors, which may affect the safety and efficacy of the therapy, remain constant despite teaching.

**EFFECTIVENESS OF A BRIEF WORKSHOP FOR RESIDENTS ON DELIVERING BAD NEWS AND DISCUSSING ADVANCE CARE PLANNING.** G.S. Fischer[1], R.M. Arnold[1]; [1]University of Pittsburgh, Pittsburgh, PA *(Tracking ID #51178)*

BACKGROUND: Despite increased interest in teaching palliative care to residents, little is known about the effectiveness of interventions designed to teach them how to deliver bad news

(BN) or discuss advance care plans (ACP). We wished to determine if a brief workshop on BN and ACP would be acceptable to residents and improve their knowledge and perceived confidence in these skills.
METHODS: Over a two-year period, interns, during their ambulatory rotation, participated in a three-hour workshop involving role-playing, designed to teach improved communication in delivering BN and discussing ACP. 1 – 3 weeks before and after the workshop, participants completed a written test that included 54 knowledge questions and six questions eliciting their perceived level of confidence with these tasks. Immediately after the workshop, interns answered five questions rating the session. Confidence and rating questions used a 5-point Likert scale, which was dichotomized to agree and disagree for analysis. Each knowledge question was given one point. Points were summed to create a knowledge test score. Pre- and post-intervention scores were compared using a paired t-test. Differences in pre- and post-intervention self-reported confidence were tested using chi-square tests.
RESULTS: Of 42 interns who took the pretest, 29 completed the posttest. Their pretest scores did not differ significantly from those who did not take the posttest ($p = 0.11$). Interns were 64% male, 64% white, with mean age 27. 100% of interns agreed that "This workshop was worthwhile," "I learned some useful skills in delivering BN," and "I learned some useful skills in discussing ACP." 89% did not agree that "This workshop would have been just as effective without role-playing." Mean test score increased by 4 points (from 41.4 to 45.4, $p < 0.0001$). More interns said that they were confident after the workshop than before in their knowledge of medical issues in ACP (9 vs 22, $p = 0.0006$), and their ability to deliver BN (16 vs 26, $p = 0.002$), to discuss ACP with hospitalized patients (16 vs 27, $p = 0.002$) and clinic patients (9 vs 24, $p < 0.0001$), and to handle emotional responses in both ACP (18 vs 25, $p = 0.036$) and BN (16 vs 27, $p = 0.001$).
CONCLUSION: A brief workshop about BN and ACP was very acceptable to interns and improved perceived confidence and knowledge in these skills.

**USE OF A HIGH FIDELITY PATIENT SIMULATOR TO TEACH CRISIS RESOURCE MANAGEMENT TO INTERNAL MEDICINE RESIDENTS ROTATING THROUGH THE ICU: A FORMATIVE EVALUATION CASE STUDY.** M. Fischer[1], S. Howard[2], A. Geller[2]; [1]Stanford University, VAPAHCS, Stanford, CA; [2]Stanford University, VAPAHCS, Palo Alto, CA *(Tracking ID #51258)*

BACKGROUND: Use of high fidelity patient simulators (HFPS) is increasingly supported by medical educators as a technique that allows instruction and assessment without risk to patients. Evaluation of HFPS programs is complicated by factors including differences in trainee experience, distant and rare skill performance and lack of concrete measures of success. Traditional methods of quantitative evaluation may not be sufficient. Given the resources required to establish and sustain programs that use HFPS, and the complexity of analyzing the utility of such programs, we undertook a formative evaluation case study to assess a new program teaching crisis resource management (CRM) to Internal Medicine residents. We found no other formative evaluations of HFPS in the medical education literature.
METHODS: Data were collected through informational meetings with key stakeholders, review of videotapes of simulation exercises and feedback sessions, survey and structured interviews. Qualitative and quanitative methods were used.
RESULTS: Of 12 eligible trainees, 6 surveys were returned. 3 trainees and 3 simulator staff members were interviewed. All participants agreed that CRM training was beneficial. Key findings were related to 1) goals and importance of CRM training, 2) debriefing sessions, 3) challenges to simulator use. All simulator staff but only 17% of trainees selected debriefing as the most important component of training. Interview and survey responses indicated that debriefing sessions could be enhanced. Average survey responses to questions relating to quality and instructiveness of the debriefing sessions ranged from 4.5 – 5.3 on a Likert scale of 1 – 7 with 4 being neutral. Structured interviews with simulator staff and trainees highlighted a number of difficulties in simulator use including staff training, scheduling and frequency of use.
CONCLUSION: Assessment of simulator use in CRM training remains complicated. Formative evaluation was used to evaluate program effectiveness and instruct future direction. We chose this technique to move beyond the difficulties encountered with the use of traditional quantitative methods, and to gain knowledge and understanding of the program that might enhance its impact. We identified several areas of success and challenge in continuing this CRM simulator training. Our methods and findings may be helpful to other institutions currently operating or considering such programs. Based on our findings the next steps for this program should involve interventions to improve the debriefing sessions, realign intent of training and subject learning, and integrate the program longitudinally into the general training curriculum. This should be followed by a more extensive formative evaluation focusing on the areas above and integrated with survey data collected as part of the simulation exercise.

**THE PHYSICAL EXAMINATION OF PATIENTS WITH ABDOMINAL PAIN: AN INTERVENTION TO IMPROVE STUDENTS' SKILLS.** K.E. Fletcher[1], V.M. Cimmino[1], B.C. White[1], L.D. Gruppen[1], D.T. Stern[1]; [1]University of Michigan, Ann Arbor, MI *(Tracking ID #51279)*

BACKGROUND: The physical examination is a crucial component of patient evaluation. It serves many purposes including gathering information, testing diagnostic hypotheses and contributing to the doctor-patient relationship. The physical examination skills of medical students and housestaff are seen as declining, even though graduates from internal medicine residencies rate physical examination skills as being quite important in their practices. One of the most effective methods for teaching physical diagnosis may be through the use of standardized patient instructors (SPIs), though their cost is quite high. Therefore, evaluating their usefulness in various situations is essential before recommending their widespread use. To this end, the following study was conducted to determine if an intervention using SPIs and small group feedback could improve medical students' skills in the evaluation of patients with abdominal pain.
METHODS: The control group (students in the class of 2001) attended a lecture during their second (M2) year of medical school. The intervention group (students in the class of 2002) also attended a lecture during their M2 year, followed by a practice exercise with SPIs and a review session with a faculty member to discuss the SPI cases. A randomly selected subgroup from the control group (N = 38) and the entire intervention group (N = 166) participated in an SPI evaluation at the end of their third (M3) year of medical school (18 months after the intervention). In the evaluation, the SPIs completed evaluation forms to assess history-taking and physical examination skills. The students were rated on a scale of 1 to 4 (1 = SPI cannot recall if the skill was performed, 2 = skill was not done, 3 = skill was partially completed, and 4 = skill was successfully completed). A history subscale containing 4 items and a physical examination subscale containing 17 items were delineated for separate analyses.
RESULTS: Ordered logistic regression of the history subscale (Cronbach's alpha 0.60) revealed a significant improvement in scores in the intervention versus the control year ($z = 3.29$, $p = 0.001$). Analysis of the physical examination subscale (Cronbach's alpha 0.71) revealed similar results in favor of the intervention group ($z = 4.49$, $p < 0.001$).
CONCLUSION: This study helps to establish one method for teaching physical examination skills to medical students. These results strongly suggest that it is possible to have an important, measurable and long-lasting impact on physical examination skills in medical students with a comprehensive intervention using SPIs and small group discussion.

**RESIDENTS' PERCEPTIONS OF THEIR TEACHING ROLE SUGGESTS NEED FOR FACULTY DEVELOPMENT MODULE FOR THE RESIDENTS.** S. Gandhi[1], R.G. Mrtek[1], L.G. Lesky[1]; [1]University of Illinois at Chicago, Chicago, IL *(Tracking ID #51825)*

BACKGROUND: In the current structure of medical education, residents make significant contributions to the training and teaching of medical students and interns. Q methodology, a powerful research tool that combines qualitative and quantitative methods for the systematic study of subjectivity, was used here to explore medical residents' perceptions of their non-didactic teaching role and to assess the need and direction for a faculty development module for resident education.
METHODS: To generate a concourse of subjective feelings about their teaching role, we interviewed thirty Internal Medicine residents. The concourse was sampled to develop a Q set of twenty self-referenced statements. Each resident Q-sorted the statements by ranking them from those they most strongly agreed with to those they most strongly disagreed with. The Q sort intercorrelation matrix was analyzed using by – person factor analysis to reveal subjective viewpoints about teaching (PQMethod freeware).
RESULTS: Two independent factors emerged, representing different teaching viewpoints held by these medical residents. Each indicated enjoyment of teaching. One factor comprised mostly of third year residents, expressed confidence in their teaching ability and adequacy of subject knowledge. The second factor comprised mainly of first and second year residents, reflected feelings of being overwhelmed with the responsibility to teach, and of possessing inadequate knowledge to teach others. Furthermore, these residents strongly disagreed that their teaching could help guide the career choices of students.
CONCLUSION: Compared with third year residents, first and second year residents are not as comfortable with their teaching role. A faculty development module for the residents may help to enhance understanding of and comfort with their teaching role.

**IMPACT OF AN INTEGRATED FACULTY DEVELOPMENT PROGRAM.** M.L. Green[1], C.P. Gross[1], E.S. Holmboe[1], J.G. Wong[1], W.N. Kernan[1]; [1]Yale University, New Haven, CT *(Tracking ID #50663)*

BACKGROUND: Integrating clinical teaching and clinical content into the same faculty development (FD) program has been proposed as a way to consolidate CME time and facilitate learning. Our objective was to evaluate a program integrating precepting skills and primary care genetics.
METHODS: We conducted a trial of a FD intervention. Community-based and university-based preceptors participated in a 3-hour program that included discussions, trigger tapes, and role-plays. At the end of the program, participants rated their competence at 4 teaching and 4 clinical skills before (retrospectively) and after the program on a 5-point scale (1 = I do not do this – 5 = I am highly skilled). They also listed up to 3 changes that they would make in their teaching and clinical practices. We contacted them 2 months later to determine if they implemented the changes.
RESULTS: 22 of 26 (85%) of the participants completed the evaluation. The table shows their skill ratings. The most common changes were "assess trainees' learning needs" (50%) and "assess risk for breast cancer and BRCA" 45%). Data collection on change implementation is ongoing.
CONCLUSION: An integrated FD program can improve participants' self-rated teaching and clinical skills. Participants are also willing to commit to changes in their teaching and clinical behaviors.

| | Before | After | p Value |
|---|---|---|---|
| Identify trainee's learning needs | 3.3 | 4.2 | <0.001 |
| Limit teaching agenda | 3.3 | 4.1 | <0.001 |
| Utilize priming and modeling | 3.0 | 3.8 | 0.001 |
| Maintain trainee's "ownership" | 2.9 | 3.8 | <0.001 |
| Estimate BRCA risk | 2.7 | 4.0 | <0.001 |
| Interpret BRCA testing | 2.1 | 3.4 | <0.001 |
| Explain risk reduction strategies | 2.2 | 3.6 | <0.001 |
| Council about genetic screening | 2.5 | 3.6 | <0.001 |

**THE IMPACT OF INTERNATIONAL HEALTH EXPERIENCES ON A PROSPECTIVE COHORT OF INTERNAL MEDICINE RESIDENTS.** A.R. Gupta[1], E.S. Holmboe[1], C.K. Wells[1], F.J. Bia[1], M. Barry[1]; [1]Yale University School of Medicine, New Haven, CT *(Tracking ID #51870)*

BACKGROUND: Previous research demonstrating that international health experiences significantly impact physicians-in-training has been limited by selection bias and retrospective

design. Little is known about how international health experiences affect professional attitudes over the course of training. This study prospectively evaluated the impact of international health electives on professional attitudes.
METHODS: In this controlled pre-post intervention study, baseline surveys were administered to all internal medicine residents initiating training at Yale-New Haven Hospital from 1996–98. Upon graduation, residents received a follow-up survey based on their participation or non-participation in the Yale International Health Program (IHP), which funds 4–8 week international rotations. Residents' baseline and follow-up responses were linked using unique identifiers and differences were compared and analyzed with chi-square and Wilcoxon rank sum tests.
RESULTS: Paired surveys were available for 134 residents (response rate = 91%) of which 105 (78%) were interested in the IHP elective at baseline. On follow-up, 55 actually rotated abroad ("interested/went" group) and 50 residents did not ("interested/stayed" group). At baseline, there were no significant differences between interested/went and interested/stayed residents. However, at follow-up, interested/went residents maintained or increased positive attitude scores towards international health and traditional medicine whereas interested/stayed residents were significantly more likely to have developed negative attitude scores. Specifically, 80% of interested/went residents maintained or increased their agreement that "practicing in a developing country is a rewarding experience" whereas 50% of interested/stayed residents decreased their agreement with that statement; 80% of interested/went residents maintained or increased their agreement that "medical school training should include exposure to health care in developing countries" whereas 54% of interested/stayed residents decreased their agreement; 80% of interested/went residents maintained or increased their agreement that "patients should simultaneously receive traditional and western treatments, like acupuncture and chemotherapy" whereas 42% of interested/stayed residents decreased their agreement. Paired Wilcoxon rank sum tests for all three statements were statistically significant.
CONCLUSION: Physicians-in-training who participate in an international health experience are significantly more likely to maintain positive attitudes towards international health and traditional medicine over the course of residency. Conversely, interested residents who do not ultimately participate in the IHP elective experience an erosion of positive attitudes towards international health and traditional medicine.

**OUTCOMES OF A PROTOCOL FOR DOCUMENTING PHYSICIAN REVIEW OF TEST RESULTS IN A HOUSESTAFF AMBULATORY PRACTICE.** P.K. Han[1], D.M. Elnicki[1], C. Brendel[1]; [1]University of Pittsburgh, Pittsburgh, PA *(Tracking ID #51780)*

BACKGROUND: Timely and complete documentation of physicians' review of the results of tests that they order is an essential task of ambulatory practice. In spite of its importance for optimizing practice efficiency and medico-legal risk, documentation of physician review of test results often receives little formal attention in residency training. We were concerned that our housestaff ambulatory practices were not complying with reasonable standards of documentation—defined as both physician initials and date of review.
METHODS: We conducted a quality improvement project the objective of which was to improve housestaff physicians' documentation of their review of test results in the ambulatory clinic. The intervention consisted of: 1) establishing formal standards of proper documentation for housestaff physicians; 2) disseminating these standards through formal written communications and individual counseling by attending physician preceptors; and 3) monitoring and reinforcing housestaff compliance with these documentation standards by attending physician preceptors. A protocol was established which required all test results to be reviewed and signed by both resident (initially) and attending physicians before being filed in patient charts. Random chart audits were conducted at pre-intervention baseline, and also at 3 months and 8 months following intervention, measuring resident physician documentation.
RESULTS: At pre-intervention baseline, 11% of test results (n = 226) had adequate documentation (physician initials and review date) while 89% of results had inadequate documentation (77% of test results included physician initials only; 12% included no documentation of resident physician review). At 3 months post intervention, 71% of test results (n = 225) had adequate documentation (27% of test results included physician initials only; 2% included no documentation of physician review). This represented a significant ($p < .001$) improvement in complete documentation from baseline (RR = 7.0; 95%C.I. = 4.7-10.5). At 8 months post intervention 58% of test results (n = 222) had adequate documentation (30% of test results included physician initials only; 12% included no documentation of physician review). This represented a decrease from the documentation level at 3 months post-intervention (RR = .81; 95%C.I. = .71-.93), but still a significant ($p < .001$) improvement from baseline (RR-5.7; 95%C.I. = 3.8-8.5).
CONCLUSION: Our study demonstrated how a relatively simple intervention of a formal documentation standard and an office protocol facilitating attending physician monitoring and reinforcement improved residents' documentation of test result review. The study also demonstrated some decay over time of the effectiveness of the intervention, highlighting the need for continual and more aggressive reinforcement of the protocol's standards and procedures.

**INPATIENT RESIDENT WORKLOAD AND LEARNING: HOW ARE THEY RELATED?** E. Haney[1], A. Hunter[1], B. Chan[1], T. Cooney[1], J. Bowen[1]; [1]Oregon Health and Science University, Portland, OR *(Tracking ID #52371)*

BACKGROUND: The ACGME has requirements defining the maximum patient workload for Internal Medicine residents during their inpatient rotations. While the rationale for these workload "caps" is based on preserving a safe, productive learning and working environment, there has been little research on the relationship between workload and learning. We undertook a study to define residents' perceptions of the optimal patient workload for resident learning, and to determine the variables that contribute to those perceptions. Our hypothesis was that the relationship between workload and learning had a maximum point: that either too many or too few patients would result in sub-optimal learning.
METHODS: We collected data from all residents (R1-R3) assigned to inpatient services at two academic teaching hospitals (University and VA) from March 2001 through June 2001. Each weekday morning for two weeks of each month-long ward rotation, residents completed a survey of their team and individual patient censuses. Using a 5 point Likert scale, residents rated their perception of their learning (less than optimal to ideal) for the day prior; the patient acuity (stable to very sick); case-mix (heterogeneity of diagnoses); and how challenged (overwhelmed) they felt. Linear regression models with quadratic terms were fit on learning score.
RESULTS: A total of 613 surveys were completed over the 4-month period, 338 from the University and 275 from the VA. 308 of the surveys were from R1's, 242 from R2's and 63 from R3's. The equation of census versus learning score (1 = less than optimal, 5 = ideal), adjusted for perception of acuity and case mix scores, showed a parabolic curve ($p = 0.005$ for the quadratic term). Residents perceived their learning to be optimal at an average census of 9 patients. Notably, census number correlated strongly with residents' perceptions of being overwhelmed ($p < 0.0001$). Resident self-perceived learning correlated with higher acuity and greater heterogeneity of case mix ($p < 0.0001$ for both).
CONCLUSION: This study suggests that residents' perceived learning has a maximum point related to resident workload, but is impacted by perception of acuity and case-mix. In either direction away from this point, learning is less optimal. Further data analysis is planned to evaluate differences between interns and upper level residents. While residents perceive increased learning when their workload has higher acuity and heterogeneity, the interaction between these variables and residents' perceptions of being overwhelmed makes arbitrary census cap limits a more complex issue than currently portrayed.

**OBJECTIVE STRUCTURED CLINICAL EXAMS AS MOTIVATIONAL TOOLS FOR PRACTICING CLINICIANS.** K. Hanley[1], S. Zabar[1], E. Kachur[2]; [1]Gouverneur Hospital, New York, NY; [2]Medical Education Development, New York, NY *(Tracking ID #50313)*

BACKGROUND: We developed an eight-station Objective Structured Clinical Exam (OSCE) as a pre- and post-test to evaluate a nine-month training program in Women's Health for Primary Care Internal Medicine clinicians. We hypothesized that the OSCE would also help participants identify their learning needs and motivate them to actively engage in the program.
METHODS: The entire Department of Medicine at an inner city community health center on Manhattan's Lower East Side, (17 physicians, 3 physician's assistants, 1 nurse practitioner) was enlisted in the OSCE. Clinicians were released from patient care responsibilities and expected to participate, but there were no penalties for non-participation. Topics covered in the OSCE stations were chosen based on a survey of participants' perceived learning needs and a review of expert recommendations for women's health curricula. They were: depression, domestic violence, bone densitometry, infertility/sexually transmitted disease, menopause, urinary incontinence, contraception and clinical breast exam. Stations were 10 minutes long and were designed to reflect actual clinical practice, challenge participants and suffice as evaluation tools. Most stations were videotaped. No feedback was given since the exam will be repeated at the conclusion of the educational program. After the OSCE, participants completed an anonymous ten-item survey that evaluated their satisfaction with the experience and addressed motivational issues on a four point scale. They were also queried about prior experience with OSCEs.
RESULTS: The response rate was 90%(19/21). Two thirds of participants (67%) reported having prior experience with OSCEs, either as faculty observers or as examinees. Overall satisfaction was high. 89% indicated that they enjoyed the OSCE. 95% said that there were enough stations to provide a comprehensive assessment of their skills and 100% felt that the stations provided a good cross section of important women's health topics. 95% thought there was enough time to complete the tasks and 100% agreed that the cases were portrayed realistically. In terms of motivation, 100% of participants felt that the OSCE stimulated them to learn more about the topics covered and 89% reported that the it helped them identify their strengths and weaknesses. The majority (79%) would have liked to receive feedback during the OSCE, but few (26%) wanted to view their videotapes. 84% indicated that they would be interested in participating in another OSCE on different topics.
CONCLUSION: Primary care clinicians at an inner city clinic found an OSCE, even without feedback, a motivational and enjoyable educational experience. OSCEs should be incorporated into continuing medical education programs to motivate busy clinicians to expand their knowledge, skills and scope of practice.

**MULTIDIMENSIONAL EDUCATION PROMOTES THE APPROPRIATE USE OF ANTIBIOTICS IN AMBULATORY CARE.** R. Harris[1], T. Mackenzie[1], B. Leeman[2], K. Corbett[3], K. Gershman[4], H. Batal[1], J. Maselli[5], R. Gonzales[5]; [1]University of Colorado Health Sciences Center, Denver, CO; [2]Denver Health Medical Center, Denver, CO; [3]University of Colorado at Denver, Denver, CO; [4]Colorado Department of Public Health and Environment, Denver, CO; [5]University of California, San Francisco, CA *(Tracking ID #51941)*

BACKGROUND: Context: Decreasing excess antibiotic consumption in ambulatory practice is an important objective for combating rising rates of antibiotic resistance among community bacterial pathogens such as S. pneumoniae and S. aureus. Objective: To decrease total antibiotic use for acute respiratory infections (ARI) in adults.
METHODS: Design: Prospective, nonrandomized controlled trial, including baseline (October 2000–December 2000) and study (January 2001–March 2001) periods. Setting: An urban urgent care clinic associated with the major indigent care hospital in Denver, Colo. Participants: Adults diagnosed as having an acute respiratory infection (bronchitis, sinusitis, pharyngitis and non-specific upper respiratory infection). A total of 554 adults were included in the baseline and 964 (665 limited intervention + 299 full intervention) adults were included in the study. Clinicians included 26 physicians and 17 nurse practitioners. Intervention: The full intervention consisted of physician education, examination room posters and an interactive health communication (IHC) tool directed at patients. The IHC application for patients was a computer-based audio-visual, bilingual (English and Spanish) program that assessed the patient's symptoms and medical history, and then delivered a likely ARI diagnoses, self-care strategies and education about the role of antibiotics in the management of ARI. Study patients who completed the IHC tool were classified as having the full intervention whereas study patients who were not exposed to the IHC were classified as having the limited intervention. Primary Outcome Measures: Proportion of bronchitis, pharyngitis and non-specific upper

respiratory infection visits prescribed an antibiotic, and the proportion of antibiotic-treated sinusitis visits having an illness duration of 7 days during baseline and study periods.
RESULTS: The proportion of patients diagnosed with bronchitis who received antibiotics fell from 58% to 30% and 24% in the limited and full intervention groups, respectively ($p < .001$). The proportion of patients with antibiotic-treated sinusitis that had illness duration 7 days increased from 51% in the baseline period to 83% in the limited intervention group, and 78% in the full intervention group ($p < .001$ for baseline vs. limited or full intervention groups).
CONCLUSION: Antibiotic treatment of adults diagnosed as having acute bronchitis can be reduced and changes in rhinosinusitis-symptom diagnostic strategies can be changed using a combination of patient and clinician interventions.

**EFFECTS OF HOSPITALIST ATTENDINGS ON TRAINEE SATISFACTION WITH ROTATIONS.** K.E. Hauer[1], A.D. Auerbach[1], G.A. Woo[1], R.M. Wachter[1]; [1]University of California, San Francisco, San Francisco, CA *(Tracking ID #46380)*

BACKGROUND: Hospitalists are increasingly serving as inpatient attendings at teaching hospitals in an effort to enhance efficiency and quality of care. The impact of this new model on housestaff and student education is unclear.
METHODS: In a two year (1999-2001) retrospective cohort study of internal medicine housestaff and students at 2 academic teaching hospitals, we evaluated the relationship between type of attending (hospitalist vs. traditional) and housestaff and student trainees' ratings of attending teaching and the overall ward rotation. We obtained data from E*Value(tm) (Advanced Informatics), our web-based evaluation system. We used paired t-tests and multivariable mixed effects models to determine the independent effect of having a hospitalist attending on our outcomes.
RESULTS: The overall evaluation completion rate was 91% (1587 of 1742 evaluations) by trainees working with 17 hospitalists and 52 traditional attendings. Trainees reported significantly more satisfaction with hospitalist attendings than traditional attendings (8.3 vs. 8.0 on a 9 point scale, $p < 0.0001$) and rated hospitalists' overall teaching effectiveness as superior (4.8 vs. 4.5 on a 5 point scale, $p < 0.0001$). The perceived overall educational value of rotations was higher with hospitalist attendings (3.9 vs. 3.7 on a 5 point scale, $p = 0.04$). Trainees evaluated hospitalists' knowledge, teaching, and feedback as superior to that of traditional attendings. There were no significant differences in perceived interest in teaching or patients, availability, or emphasis on cost-effectiveness between hospitalists and traditional attendings. In multivariable models, compared to hospitalists, generalist traditional attendings had lower ratings for knowledge, and both specialist and generalist traditional attendings provided less effective feedback. Resident satisfaction with rotations was correlated with having a hospitalist attending, whereas student satisfaction was strongly associated with satisfaction with the housestaff, not the attending.
CONCLUSION: Trainees reported more effective attending teaching and higher quality inpatient rotations when supervised by hospitalists. This analysis suggests that hospitalists may possess or accrue a specific inpatient knowledge base and teaching skill that distinguishes them from non-hospitalists.

**INTRAMEDULLARY SPINAL CORD METASTASES FROM RENAL CELL CARCINOMA 9 YEARS FOLLOWING THE DIAGNOSIS AND TREATMENT OF THE PRIMARY LESION.** S. Chebrolu[1]; [1]Evanston, IL *(Tracking ID #52444)*

LEARNING OBJECTIVES: 1) Recognize the very rare occurence of intramedullary spinal cord metastases. 2) Recognize that renal cell carcinoma patients treated with nephrectomy may experience a late recurrence.
CASE INFORMATION: A 77-year old man presented with a one week history of progressive weakness of his legs, with the left worse than the right and associated with unsteadiness of gait, paresthesiae and recent onset of urinary incontinence. The patient had no history of trauma or headache . He had a history of renal cell carcinoma of the left kidney with adrenal metastasis 9 and 1/2 years back treated with left nephrectomy and bilateral adrenalectomies. He was on steroid supplementation and had regular yearly follow-up which revealed no evidence of recurrence of the tumor. He was a non-smoker and had no significant past medical history. Physical examination revealed grade 2+ power in the left lower extremity and grade 4 power in the right lower extremity with exaggerated deep tendon reflexes and upgoing plantar response bilaterally. MRI of the spine revealed a 8 mm enhancing intramedullary lesion at the T11 level with diffuse lower cervical and thoracic central cord edema. No other lesions were found elsewhere. The patient had laminectomy and myelotomy revealing a highly vascular tumor which was resected. Surgical pathology of the specimen confirmed the diagnosis of a metastatic renal cell carcinoma. He did well post-operatively and is currently getting rehabilitation.
DISCUSSION: Intramedullary spinal cord tumors are rare and metastasis to this location is much rarer. Lung, thyroid and breast carcinomas are the three most common causes of metastasis here. Approximately 10% of the renal cell carcinoma patients surviving 10 years after nephrectomy may experience a late recurrence. However, metastases to intramedullary spinal cord is an extremely rare phenomenon with very few cases in the literature. It may result from hematogenous dissemination through either the Batson's plexus or by arterial embolization. Appearance of intramedullary metastases generally is an unfavorable sign as it frequently occurs in conjunction with widespread metastatic disease. In our present case, the IMSCM happened long after the treatment of the renal cell carcinoma and was not accompanied by metasteses elsewhere.

**THE CURRENT STATE OF MEDICAL GRAND ROUNDS IN THE UNITED STATES.** R.S. Hebert[1], S.M. Wright[1]; [1]Johns Hopkins University, Baltimore, MD *(Tracking ID #50557)*

BACKGROUND: Grand rounds are the cornerstone of a department of medicine's educational programs. We conducted a study to collect information about the objectives, structure, quality, attendance, and funding of grand rounds.
METHODS: A self-administered, cross-sectional survey was sent to department of medicine chairmen at hospitals with Accreditation Council for Graduate Medical Education-accredited medicine residency programs. The response rate was 77%.
RESULTS: Grand rounds were offered by 97% of departments and accredited for continuing medical education in 96% of hospitals. The most important objectives were education about clinical topics and faculty role modeling of life-long learning. While accredited continuing medical education must incorporate needs assessment, program evaluation, and knowledge assessment, these steps were performed in only 73%, 59%, and 17% of programs, respectively. University hospitals were less likely than other hospitals to incorporate these curricular principles ($p < 0.01$). Eighty-eight percent of grand rounds were lectures. Only 9% of grand rounds were clinical case presentations and 1% were interactive workshops or small groups, the formats most effective in facilitating adult learning and a humanistic approach to patients. Patients were present at less than 3% of grand rounds. Many learners do not attend grand rounds despite their reported high quality. Learners at university hospitals were more likely to miss a majority of sessions ($p < 0.001$). Grand rounds were the most expensive conference in 78% of departments.
CONCLUSION: The ubiquity of and considerable resources dedicated to medical grand rounds provide evidence the conferences are valued. However, they are rarely structured to maximize the attainment of educational or humanistic goals.

**A SYSTEMATIC REVIEW OF RESIDENT RESEARCH CURRICULA.** R.S. Hebert[1], R.B. Levine[1], C.G. Smith[1], S.M. Wright[1]; [1]Johns Hopkins University, Baltimore, MD *(Tracking ID #51394)*

BACKGROUND: To systematically review the published literature on research training curricula for house officers.
METHODS: Articles were identified by searching the Medline, Educational Resources Information Center, and Science Citation Index databases, educational websites, bibliographies of captured articles, and by contacting experts who had developed resident research curricula. Program information, goals/objectives, instructional strategies, and evaluation mechanisms were abstracted from articles.
RESULTS: The search identified 32 curricula from a wide range of specialties. The most common objectives were to improve house officers' research and literature appraisal skills. Broader departmental objectives included improving research quality and quantity, obtaining more research funding, and increasing access to multidisciplinary expertise. Curricula usually included combinations of educational methods; a prevalent strategy was to expose learners to role models and mentors. Most reports lacked information necessary to critically evaluate the curricula. Only twenty-two articles articulated goals or objectives and three described a needs assessment. Evaluation mechanisms were often rudimentary, limited to learners' self-assessment or authors' anecdotal reports. Five articles described the results of formal testing performed to assess the impact of the curriculum on learners' knowledge. No curricula were evaluated as a prospective pretest-posttest controlled trial. A minority of articles reported obstacles encountered or modifications made in the curriculum.
CONCLUSION: Successful educational interventions should incorporate needs assessments, clearly defined learning objectives, and evaluation. While many curricula exist to facilitate resident research, the lack of developmental information and meaningful evaluations in many reports will hinder educators who are interested in adapting these curricula.

**A RANDOMIZED CONTROLLED TRIAL TO EVALUATE THE EFFECT OF DEDICATED CLINICAL TEACHERS (OR "EDUCATIONALISTS") ON THE INTERNAL MEDICINE CLERKSHIP EXPERIENCE.** J.E. Hefner[1], D. Elnicki[1], K. Barnard[1], T. Painter[1], M. Mcneil[1]; [1]University of Pittsburgh, Pittsburgh, PA *(Tracking ID #51069)*

BACKGROUND: The introduction of hospitalists (physicians who spend at least 25% of their time as physicians of record for inpatients) has impacted patient care, resident and medical student education. We would like to determine whether a dedicated group of clinical teachers with a specific interest in undergraduate education (whom we termed educationalists) would have a comparable impact on medical education. Thus we randomly assigned third year students to either clinical teachers or educationalists to demonstrate a difference in knowledge gained during the clerkship (as measured by NBME Subject Exam) and student satisfaction. An educationalist was defined as a student teaching attending (STA) for 3 mos/yr while a clinical teacher served 1 mo/yr.
METHODS: Our third year medical students receive 8 weeks of focused education in inpatient internal medicine. This clerkship is divided into two 4-week blocks, each block at a different hospital. An STA is assigned to each group for the 4-week period at each hospital. STA's receive written goals and expectations prior to the rotation. Standardized curriculum content (based on the CDIM/SGIM curriculum) is discussed in a patient-centered manner. The STA has 5 hours of contact with the students per week. During the academic year 2001 – 02, 2 educationalists were assigned to each teaching site every other 8 weeks for a total of 4 months. The student assignments to hospital location, resident team and STA were random. Subject exam scores and the student's evaluation form, which contains 14 questions about student satisfaction with their learning experience on a 1 – 5 Likert scale (1 = poor, 5 = excellent), were compared between groups. There were 22 students assigned to 6 educationalists and 24 students assigned to 6 non-educationalists.
RESULTS: Students taught by the educationalists thought they were more likely to have learned to develop a differential diagnosis (4.3 v. 3.9, $p < 0.04$) and more core internal medicine content (4.0 v. 3.6, $p < 0.02$) compared to the non-educationalists. Students thought the educationalists' teaching improved their case presentations (4.1 v. 3.3, $p < 0.001$), their physical exam skills (3.7 v. 2.5, $p < 0.0002$) and their written history and physical exams (4.3 v. 3.4, $p < 0.001$) compared to the non-educationalists' teaching. Educationalists provided more

feedback (4.2 v. 3.0, p < 0.001) and were more likely to be perceived as role models (4.1 v. 3.5, p < 0.026) and mentors (4.0 v. 3.3, p < 0.01). There was no difference in the subject exam scores (71 v. 72, p > 0.20).
CONCLUSION: Having dedicated groups of clinical teachers with a specific interest in medical education (educationalists) improve the quality of medical education and the student's satisfaction with the learning process. No difference was seen in knowledge gained.

**DIABETES EDUCATIONAL EMPOWERMENT PROJECT (DEEP).** R. Hernandez[1], G.M. Sacajiu[1], J.P. Deluca[1], G.A. Paccione[1], J.H. Shim[1]; [1]Montefiore Medical Center, Bronx, NY *(Tracking ID #51827)*

BACKGROUND: Among patients receiving routine primary health care in the Bronx, there is a high prevalence of poorly controlled diabetes. Diabetes is the third most common diagnosis at our clinic. The benefit of education in diabetes control is well studied but few trials have been done in poor inner city areas. In this study, the impact of a three-hour culturally sensitive diabetic education program on knowledge, health perceptions and clinical status is being assessed.
METHODS: Existing diabetes educational methods were culturally adjusted to create a three-hour physician led session consisting of didactics, group participation and self-taught materials. On twenty randomly selected days between July 2001 to November 2001, every patient with the diagnosis of diabetes on their encounter form or that had a hemoglobin A1C blood test, was invited to participate in the program. Patients who agreed, received a questionnaire assessing knowledge of diabetes and demographic information both before and after the intervention. Six months later, a follow-up questionnaire assessing knowledge and health perception is being given to the group of patients who participated in the session and to the group of patients who were invited but declined to partake in the intervention. In addition, a medical chart review is being done to assess clinical outcomes.
RESULTS: A total of 140 patients were identified. Of those, 73 were able to be contacted and 47 agreed to participate. Sixty percent of the patients completed the intervention. Eighty-one percent of the patients were females, 28% were US born and 53% were Spanish speaking. Those that agreed to participate in the program answered about 50% of the diabetes knowledge questions correctly. There was about a 10% increase in score immediately following the class. Overall, the patients who completed the program had a greater sense of empowerment over their disease.
CONCLUSION: Our initial data demonstrates that patients' knowledge of diabetes improves with a non-traditional, culturally sensitive medical educational program. Furthermore, this intervention enhances perception of diabetes control. One of the challenges facing internists is how to empower patients of different cultural backgrounds. We created one model trying to meet this challenge.

**TEACHING COMPLEMENTARY AND ALTERNATIVE MEDICINE (CAM) TO INTERNISTS.** M.G. Hewson[1], J.E. Fox[1], L. Copeland[1], E. Topol[1]; [1]The Cleveland Clinic, Cleveland, OH *(Tracking ID #46530)*

BACKGROUND: The public has increasingly embraced non-conventional healthcare modalities, reflecting a need for more relationship-centered, holistic care plus recognition of the human spirit in healing. To meet this need, conventional physicians need to accommodate an understanding of CAM modalities, and be willing to talk with their patients about CAM. We offered an 8-hour course with short lectures interspersed with physical experiences involving mind-body interventions (yoga, mindfulness meditation, imagery), energy therapies (Reiki, T'ai-Chi) and body-based therapies (massage, breath-work, and neuromuscular integrative action). Course objectives were to describe: the principles on which CAM is based; the scientific evidence for, the efficacy and safety of CAM; and provide information about local CAM resources.
METHODS: A randomized controlled study (NIH-funded and IRB-exempted) with a questionnaire that measured knowledge about, and attitudes to CAM, practice behaviors, and factors influencing willingness to discuss CAM with patients both before and after the intervention. Nonparametric statistics (Mann-Whitney and Wilcoxon Signed Ranks tests) measured group differences. The physicians were randomized to comparison (N = 16) and participant (N = 20) groups.
RESULTS: Both groups were statistically similar before the intervention on all items. Afterwards, the comparison group showed no change, but the participant group showed statistically significant improvement (p < .01) on knowledge about and attitudes to the targeted CAM modalities, and significant improvement when compared with the comparison group. Factors influencing their willingness to recommend CAM were: research evidence, personal experience, and reassurance of safety. 45% indicated they were likely/very likely to change their behaviors, while 50% were somewhat likely. Workshop ratings and comments reflected enthusiasm for the experiential workshop with requests for additional data and more topic coverage, especially herbal remedies.
CONCLUSION: The experiential workshop was highly successful and effective in changing physicians' knowledge and attitudes concerning CAM. Physicians in this study needed personal experience of the benefits, and reassurance of the scientific validity of the CAM modalities.

**CONSTRUCT VALIDITY OF THE MINI-CEX: RESULTS FROM A FACULTY DEVELOPMENT TRIAL.** E.S. Holmboe[1], S. Huot[2], R.E. Hawkins[3]; [1]Yale University, Cheshire, CT; [2]Yale University, New Haven, CT; [3]USUHS, Bethesda, MD *(Tracking ID #52021)*

BACKGROUND: The mini-CEX has good reliability for the evaluation of clinical skills. However, the mini-CEX has not been rigorously evaluated for validity. Construct validity refers to the ability of a tool or index, here the mini-CEX, to differentiate between levels of performance. The primary objective of this study was to evaluate the construct validity of the mini-CEX.
METHODS: As part of the baseline assessment for a RCT of faculty development for evaluation skills, 40 faculty from 16 different IM residency programs in the Northeast observed and rated 9 clinical encounter videotapes using the mini-CEX form. The videotapes were purposefully scripted to portray 3 levels of skill for history taking, physical exam, and counseling for common conditions. Each tape was designed to portray either a poor, marginal to satisfactory, or high satisfactory to superior performance. Participants were asked to rate each tape on the mini-CEX's 1–9 point scale. Means, medians, and range were calculated for each tape.
RESULTS: Forty faculty participants completed 345 evaluations, a mean of 38 evaluations per clinical tape. The mean, median, and range are provided below for each skill and level of performance depicted on the tapes. Despite wide ranges of scoring for any given level of scripted resident performance, there was a statistically significant difference for both the mean and median ratings when comparing "poor" to "satisfactory/marginal" and "marginal/satisfactory" to "high satisfactory/superior" tapes. The p values for all comparisons were all < .0001.
CONCLUSION: This study, using scripted videotape clinical encounters, demonstrates that the mini-CEX evaluation tool does possess construct validity among a group of motivated clinical educators. Additional work is needed to assess the accuracy of the faculty observations, especially given the wide ranges of scores seen for all 9 videotapes.

| | Depicted Level of Performance | | |
|---|---|---|---|
| Skill | Poor | Marg/Sat | Hsat/Superior |
| History | | | |
| Mean/Median/Range | 3.3 / 3 / 1–6 | 5.4 / 5 / 4–8 | 6.5 / 6 / 4–9 |
| PE | | | |
| Mean/Median/Range | 3.2 / 3 / 1–6 | 5.0 / 5 / 3–9 | 7.2 / 8 / 3–9 |
| Counseling | | | |
| Mean/Median/Range | 2.2 / 2 / 1–5 | 4.6 / 4 / 3–8 | 6.0 / 6 / 2–9 |

**FACULTY DEVELOPMENT TO REDUCE LENIENCY RATING ERROR: RESULTS FROM A RANDOMIZED CONTROLLED TRIAL.** E.S. Holmboe[1], S. Huot[2], R.E. Hawkins[3]; [1]Yale University, Cheshire, CT; [2]Yale University, New Haven, CT; [3]USUHS, Bethesda, MD *(Tracking ID #52414)*

BACKGROUND: Multiple studies have shown that leniency error is common on faculty evaluations, leading to inflated scores and making distinctions concerning resident performance difficult. Research in industry has shown that rater training can reduce leniency error. The main objective of this study was to determine if faculty training would reduce leniency error on evaluation of specific resident clinical skills.
METHODS: This is a controlled pre-post intervention study. Eight of 16 IM residency programs participating in a randomized controlled trial to improve faculty evaluation skills were randomized to an intensive 4 day course on evaluation that included workshops in rater error (RET), performance dimension (PDT), and frame-of-reference (FOR) training. The PDT focused on counseling skills. Control group faculty were provided with information resources for evaluating competence. At the beginning of the course, both control and intervention groups rated a series of scripted clinical encounter videotapes of a standardized resident and patient using the mini-CEX 9-point rating scale for history, physical exam, and counseling skills at 3 different levels of performance. At the end of the course, the intervention group faculty again rated 5 of the 9 tapes, including all 3 levels of counseling skills. Results for the 5 tapes are presented as pre and post mean and median scores. P <. 05 was considered significant.
RESULTS: At baseline, ratings for the 5 videotapes were not statistically different between the intervention (n = 17) and control group (n = 23) faculty. Results for the 17 faculty receiving RET, PDT, and FOR training are shown in the table. Decreases in the mean and median ratings for 4 of the 5 clinical encounter tapes were statistically significant.
Key for table: Mn = mean / Md = median / *not statistically significant at p < .05.
CONCLUSION: Faculty development in rater training can change faculty rating behavior and potentially reduce leniency error. Future research should assess whether this training affects faculty ratings of their own residents, and if training improves rating accuracy. Further analysis is planned to help determine if this training induces stringency error.

| | History | Physical | Counseling | | |
|---|---|---|---|---|---|
| Level of skill | 2 | 2 | 1 | 2 | 3* |
| | Mn/Md | Mn/Md | Mn/Md | Mn/Md | Mn/Md |
| Baseline | 5.1 / 5 | 4.4 / 5 | 2.2 / 2 | 4.6 / 4 | 5.7 / 6 |
| Post intervention | 3.8 / 3.5 | 3.7 / 3 | 1.8 / 1.5 | 3.3 / 3 | 6.0 / 6 |

**HANDHELD COMPUTER USE OF PHARMACOTHERAPY DECISION MAKNG BY INTERNAL MEDICINE RESIDENTS.** B.L. Houghton[1], R. Markert[1], E.C. Rich[1]; [1]Creighton University, Omaha, NE *(Tracking ID #52139)*

BACKGROUND: Personal Data Assistants (PDAs) have been utilized in clinical practice by physicians and some training programs have supported their use by residents. Both Creighton University and St. Mary's Medicial Center provide PDAs to their residents.
METHODS: We conducted a survey of 53 Internal Medicine residents from Creighton University School of Medicine in Omaha, NE and 31 Internal Medicine residents from St. Mary's Medical Center in San Francisco, CA. For four information resources, PDAs, colleagues, reference manuals, and pharmaceutical sales representatives, the survey asked about frequency of use, availability of the resource, ease of finding information, confidence in the correctness of the information found, and ease of applicability of information to clinical practice. The responses were measured on a 1 through 5 Likert scale and comparisons were made using the Friedman test.
RESULTS: Medication information obtained from PDAs was easier to find when compared to colleagues and reference manuals and apply in clinical practice when compared to

reference manuals. Furthermore, use of PDAs to look up medication information increased more over the year compared to use of colleagues or reference manuals.
CONCLUSION: PDA use by Internal Medicine residents for obtaining pharmacotherapy information increases with time, and residents rate the information easier to find and apply compared to traditional paper reference manuals. Further study should focus on determining which applicaitons for the PDA are most useful to clinicians and if use of PDAs improves patient care.

**USING BEDSIDE ROUNDS COMPARED WITH OTHER METHODS TO TEACH COMMUNICATION SKILLS IN CLINICAL CLERKSHIPS.** R.W. Janicik[1], A. Kalet[1], M. Schwartz[1], M. Lipkin[1], S. Zabar[1]; [1]New York University, New York, NY *(Tracking ID #52147)*

BACKGROUND: Bedside teaching is often praised but variably provided during medical student education. As part of a new, 32-hour communication skills curriculum in all seven required clerkships at NYU School of Medicine, students have 8 hours of Doctor/Patient Rounds during the Internal Medicine (IM) clerkship. The rounds include a discussion with 4-5 students and an experienced faculty member concerning 5 topics: alcoholism, end of life issues, cross-cultural challenges, difficult patients and clinical reasoning (students were provided with readings prior to rounds). The discussions are followed by bedside interviews and a wrap-up discussion. We compare student self-reported improvement in communication skill in the IM clerkship with that of other clerkships that primarily use simulated patients, workshops, and role-play activities.
METHODS: The entire class of 2002 (N = 160) completed the new communication skills curriculum, run continuously during each clerkship. At the end of each clerkship students completed a survey measuring self-reported change in communication skills, assessment of teaching quality and time spent on communication skills. The IM clerkship means were then compared with the means of other Clerkships.
RESULTS: 69% of surveys were completed. On a scale of 1 – 5 (1 = declined greatly, 5 = improved greatly), students reported the most improvement after the IM clerkship, 4.2 vs. 3.7 in all others combined. Students felt they improved more after IM, which highlighted bedside teaching activities, than clerkships which primarily used workshops-3.9, Objective Structured Clinical Exams (OSCE's)-3.7, or Group OSCE's-3.6. To dissect this further, we compared other characteristics. IM had twice the contact hours of the other clerkships (8 vs. 3.8). Also, on a scale of 1 – 4 (1 = poor, 4 = excellent), students reported that IM had the highest quality of teaching (3.4) versus all other clerkships (3.1). However, in a linear regression the association of bedside teaching with improved skills was independent of the effects of the number of contact hours and the teaching quality.
CONCLUSION: Bedside teaching, although more work intensive, correlated with greater improvement in perceived skill and in higher quality teaching compared to other standard communication skills teaching methods. This study suggests the improved outcome may be worth the investment.

**DO HOUSE OFFICERS RELIGIOUS BELIEFS INFLUENCE THEIR ETHICAL ATTITUDES? A PRELIMINARY SURVEY WITH IMPLICATIONS FOR EDUCATION IN ETHICS AND PROFESSIONALISM.** L.C. Kaldjian[1], B. Wu[2], J.N. Kirkpatrick[3], A. Thomas-Geevarghese[3], M. Vaughn-Sarrazin[1]; [1]University of Iowa, Iowa City, IA; [2]Hospital of St. Raphael, New Haven, CT; [3]Yale University, New Haven, CT *(Tracking ID #51541)*

BACKGROUND: Very little is known about the foundational beliefs (philosophical or religious) that may shape physicians' ethical values and motivate their professionalism. In order to begin to explore possible associations between the religious beliefs and ethical attitudes of house officers, we conducted a cross-sectional survey.
METHODS: A self-administered, anonymous questionnaire was hand-delivered to house officers in 3 internal medicine residency programs in Connecticut between February and June, 2000. The survey instrument contained 30 Likert-scale items that included questions regarding: (1) ethical issues related to managed care, physician-assisted suicide, and professionalism; (2) perceptions about the influence of their religious beliefs on their ethical attitudes; (3) perceptions about the dehumanizing pressures of residency training.
RESULTS: Of eligible house officers, 234 (99%) completed the survey. Respondents had a mean age of 29 years, 46% were women, and they were in their first (PGY1, 42%), second (PGY2, 27%), or third or fourth (PGY3/4, 31%) post-graduate year. A religious affiliation was reported by 70% of house officers, 37% attended religious services at least monthly, and the majority were deeply (23%) or moderately (48%) committed to their religious beliefs. 30% agreed that "my religious beliefs influence my attitudes about the ethics of managed care and the allocation of medical resources." 41% agreed that "my religious beliefs influence my attitudes about the ethics of physician-assisted suicide", and those who were moderately or deeply committed to their religious beliefs were less likely to think that physician-assisted suicide should be legalized (30% vs. 48%, P = 0.01). 58% agreed that "my religious beliefs are important in helping me maintain respect for my patients as human beings." 41% of house officers agreed with the statement, "The pressures of residency training often cause me to view my patients as cases of disease rather than as human beings", and agreement was more common among PGY1 than PGY 2 or 3/4 house officers (51% vs. 30% and 37%, respectively, P = 0.02); agreement with this statement was less common among house officers who reported being "deeply" committed to their religious beliefs (25% vs. 46%, P = 0.01) or reported at least occasional religious service attendance (36% vs. 57%, P = 0.009).
CONCLUSION: In this study population, religious beliefs and commitment appear to play a significant role in some of the ethical attitudes of many house officers and may help them withstand dehumanizing pressures during residency training. Educators should endeavor to understand the nature and role of trainees' religious commitments and explore ways to support the integration of these commitments in the process of postgraduate education in ethics and professionalism.

**LEAVE THEM ASKING FOR MORE: THE ACCEPTABILITY OF A NEW CLERKSHIP COMMUNICATION SKILLS CURRICULUM- INITIAL EVALUATION OF THE MACY INITIATIVE IN HEALTH COMMUNICATION.** A. Kalet[1], R.W. Janicik[1], M.D. Schwartz[1], M. Lipkin[1], L.R. Tewksbury[1], L.M. Buckvar-Keltz[1], S. Zabar[1]; [1]New York University, New York, NY *(Tracking ID #52172)*

BACKGROUND: It is difficult to implement comprehensive, longitudinal communication skills curricula in the clinical years since clerkships are organized and implemented by clinical department. There are additional concerns that such teaching would be ineffective and poorly received because students would resent the addition of new curricular hours during busy clerkships. As one of three collaborating medical schools of the Macy Initiative in Health Communications, we evaluated our curriculum, which uses a variety of experiential teaching methods, and is comprehensive, multi-disciplinary, and clinically integrated into all clerkships at NYU.
METHODS: The class of 2002 (N = 160), experienced 29 – 33.5 new curriculum hours distributed across all the 7 required clinical clerkships. The new activities included bedside rounds, Objective Structured Clinical Exams, interactive workshops (video triggers, role-play), and lecture. Students also interacted with 18 standardized patient cases with feedback over the year. Students completed a questionnaire at the end of each clerkship that addressed the self-reported impact of the new activities on their communication skills, the quality of the teaching, and the time spent on communication skills.
RESULTS: 69% of surveys were completed. Overall 66% felt they had the right amount of communication training, 39% and 45% wanted more feedback and direct observation, respectively. As a result of the intervention 73% assessed their own communication skills as improved, and 67% rated the teaching quality as good to excellent. Students who rated the teaching quality good or excellent reported greater improvement in their communication skills compared to those who rated it poor or fair (79% vs. 62%). Self reported improvement in communication skill and teaching quality was rated highest for clerkships with the most number of contact hours.
CONCLUSION: It was highly acceptable and educationally satisfying to students to integrate communication skills teaching into clinical clerkships. Even with more than 30 new hours of active and tightly planned curriculum, most students perceived the need for more training, direct observation, and feedback on communication skills.

**MEASURING THE QUALITY OF VETERANS AFFAIRS (VA) CLINICAL TRAINING: A LEARNERS PERCEPTION SURVEY OF MEDICAL RESIDENTS IN VA MEDICAL CENTERS.** S.A. Keitz[1], S.C. Gilman[2], A. Breen[3], M. Graber[4]; [1]Durham VAMC, Durham, NC; [2]VA EES, Long Beach, CA; [3]Cleveland VAMC, Cleveland, OH; [4]Northport VAMC, Northport, NY *(Tracking ID #52169)*

BACKGROUND: Each year VA supports 8,700 physician resident positions nationally to enhance the quality of care provided to veteran patients. A survey instrument was created to measure learners' perceptions and provide a discrete measure of the quality of the VA's academic training mission. We compared responses of physician residents in internal medicine (IM), surgery (surg) and psychiatry (psych) to identify areas of excellence and opportunities for improvement in the learning process.
METHODS: As part of a national survey on VA learners' perceptions, we attempted to register and survey all trainees, including physician residents, who were in the VA system during March 2001. Overall satisfaction was determined by asking each resident to give a numeric value to their VA training experience based on a scale of 0 to 100 where 70 is passing. Residents also were also asked to score perceptions in four domains: clinical faculty/preceptors; learning, working, and physical environments.
RESULTS: 3,338 physician residents were registered. Of these, 1,775 returned surveys (53%). 906 were trainees in IM (n = 647), surg (n = 101), or psych (n = 167). Residents in all three groups gave similar overall satisfaction rating (IM 78, surg 77, psych 79). Approximately 75% of residents stated their VA training was equal to or better than their non-VA training. A large majority of all residents were satisfied with their clinical faculty/preceptors (IM 88.0%, surg 77.3%, psych 88.2%) and with learning environment (IM 75.7%, surg 73.2%, psych 80.5%). A smaller majority reported satisfaction with working environment (IM 61.6%, surg 58.8%, psych 76.1%) and physical environment (IM 61.3%, surg 69.3%, psych 67.1%). Within the clinical faculty/preceptors domain, residents in all groups were satisfied with their faculty being patient orientated (IM 87.0%, surg 71.7%, psych 86.7%) and role models (IM 79.9%, surg 65.7%, psych 81.4%). Within the learning environment domain, residents were satisfied with level of supervision (IM 86.1%, surg 81.8%, psych 84.2%) and there was nearly unanimous satisfaction with level of autonomy (IM 94.0%, surg 98.0%, psych 94.6%). Residents reported dissatisfaction with the amount of "scut work" as well as availability of food on call.
CONCLUSION: The survey tool was sensitive to differences among resident groups with psych residents reporting the most satisfaction and surg residents the least. Overall satisfaction was high in many measures with specific areas of excellence in clinical faculty, supervision, and autonomy. Specific areas for improvement were identified within the learning, working, and physical environments.

**ANALYSIS OF RESIDENT CODING AND BILLING SKILLS.** F.M. Khan[1], L.J. Cation[1]; [1]University of Illinois at Peoria, Peoria, IL *(Tracking ID #52138)*

BACKGROUND: Physician coding and billing is an integral part of a physician's practice and many believe that this should be taught during residency training. Indeed, the ACGME has recently mandated that resident be taught systems based practice skills. There is little data on internal medicine resident ambulatory coding in the literature. We studied the coding practices of our residents to identify the degree of accuracy of resident coding and the effectiveness of our training in this area.
METHODS: From October 1999 – June 2001, our hospital professional coding personnel used the HCFA 1997 Evaluation and Management (EM) guidelines to review five patient encounter clinic notes twice a year for each internal medicine (IM) and medicine-pediatrics (MP) resident. The areas evaluated were basic documentation (chief complaint, history of

presenting illness, exam, diagnosis and plan) and EM code matching the corresponding documentation. This lead to four areas of analysis: basic, match, under-coding (under), and over-coding (over). This data was further broken down per PGY level, residency type, international (IMG) versus United States (AMG) medical graduates, and whether residents had attended one of the available one hour coding workshops run by professional coders. In-training examination (ITE) data for each resident was also collected. Statistical analyses using Mann-Whitney test and Spearman's Rho correlation was performed.
RESULTS: Mann-Whitney testing revealed that MP residents did better than IM residents in PGY-1 and PGY-3 years ($p < 0.05$) in basic documentation. IMG and AMG residents had similar coding in the beginning of residency, but IMG residents did significantly less under-coding and over-coding by PGY-3 ($p < 0.05$). Of the residents who attended one or both coding workshops, only the PGY-2 residents showed a significant improvement ($p < 0.05$) in their basic documentation scores and in reducing under-billing. Spearman Rho testing revealed no significant correlation between coding scores and resident knowledge base as determined by ITE scores.
CONCLUSION: Our study reveals that a majority of residents meet basic documentation requirements. However, more than half of the charts reviewed per PGY level did not have a code that matched documentation. There was a modest improvement in matching with increasing training level. Over-coding and under-coding also generally improved with increasing training level and if the resident was an IMG. Coding did improve with attendance of the coding workshop but was not related to a resident's medical knowledge. Based upon the results of our study, we conclude that we may not be training our residents adequately in coding. In private practice this may either lead to decreased revenue or risk for fines. Incorporation of more coding workshops into the curriculum may help alleviate this problem.

**Ambulatory Patient Encounter Coding Statistics of IM and MP Residents**

| PGY | N | BASIC | MATCH | UNDER | OVER |
|---|---|---|---|---|---|
| 1 | 27 | 92% | 30% | 49% | 21% |
| 2 | 28 | 93% | 37% | 40% | 23% |
| 3 | 26 | 91% | 46% | 37% | 19% |
| 4 | 12 | 93% | 46% | 45% | 9% |

**USING STUDENT NARRATIVES TO ASSESS A PALLIATIVE CARE EDUCATIONAL EXPERIENCE.** J.R. Kimberly[1], R.C. Stephenson[2], P.R. Lichstein[1], D.L. Currin[1], J.L. Wofford[1]; [1]Wake Forest University School of Medicine, Winston-Salem, NC; [2]Hospice and Palliative CareCenter of Winston-Salem Forsyth County, Winston-Salem, NC *(Tracking ID #50671)*

BACKGROUND: Reflecting on one's reactions to palliative care experiences is an important component of learning palliative medicine. Few studies have offered medical students' perceptions of, or reactions to, palliative care experiences. We proposed that requiring third year students to write a brief reflection paper would (1) offer a unique window on the learning experience of the student and (2) would help determine if well-established learning objectives for palliative care, which might be difficult to discern through traditional evaluation, are being addressed.
METHODS: We required third year students in a palliative medicine rotation to write a one to two page reflection paper. Narratives were reviewed by three faculty members — two internists with an interest in palliative care and one health educator. Reviewers judged whether each narrative reflected five end-of-life skill domains as identified by the Working Group on the Pre-Clinical Years of the National Consensus Conference on Medical Education for Care Near the End of Life. After one round of blinded review, reviewers discussed discrepancies. We required consensus among all three reviewers to assign a particular narrative as reflecting that learning domain.
RESULTS: Thirty-three reflection papers were available for evaluation. Two entries were poems, three were letters, and the remainder were written in an essay format. The majority of narratives reflected the two learning domains on "psychological, sociological, cultural, and spiritual aspects of death and dying" (96.9%, n = 32), and "self-critical reflection on personal and professional experiences" (96.9%, n = 32). Of the other three domains, only a third of narratives addressed "pathophysiology and management of common symptoms at the end of life" (36.3%, n = 12), and "points of consensus and controversy in ethical aspects of end of life care" (30.35, n = 10) while "Developing basic interviewing and communication skills essential to end of life care" was reflected in two-thirds of the narratives (66.7%, n = 22). There was consensus on the part of the three reviewers in the majority of the thirty-three narratives and five learning domains. Eight of the nine incidents of nonconsensus involved the learning domain "identifying significant points of consensus and controversy in the ethical aspects of end of life care."
CONCLUSION: As an educational strategy, student narratives promote reflection on experience. They are an especially good tool for assessing and encouraging self-critical reflection and a holistic appreciation of the patient who is facing a life-threatening illness. Narratives offer a window into the experiential aspect of learning, complementing standard evaluation methods. Written reflection improves educators' ability to assess the value of the learning experience and helps enculture attitudes and behaviors that allow trainees to provide better care for dying patients.

**BARRIERS TO THE TEACHING OF GERIATRICS BY GENERAL INTERNAL MEDICINE FACULTY.** L.M. Kirk[1], C.D. Rubin[1], H. Stieglitz[1], B. Vicioso[1]; [1]University of Texas Southwestern Medical Center at Dallas, Dallas, TX *(Tracking ID #48489)*

BACKGROUND: It is important for medical students and residents to acquire the knowledge, skills, and attitudes necessary to care for the growing geriatric population. General Internal Medicine (GIM) faculty members do a large portion of clinical teaching and care of the elderly in the inpatient and primary care ambulatory settings.
METHODS: To characterize what is being done to develop geriatrically-oriented GIM faculty we carried out structured interviews with the chiefs of 30 GIM units and 11 Geriatrics Centers of Excellence.
RESULTS: GIM faculty were perceived as being responsible for teaching geriatrics, either with geriatrics faculty or alone, at 60 per cent of schools interviewed. GIM faculty were less likely to participate in teaching at schools where there were Geriatrics Centers of Excellence ($p = 0.043$). Overall, 77 per cent of GIM chiefs thought it should be the responsibility of GIM faculty to teach geriatrics. GIM faculty were felt to perceive a need to teach geriatrics at only 47 per cent of schools. 53 per cent of GIM chiefs felt that their faculty had inadequate knowledge and skills to teach geriatrics. Only 33 per cent reported any faculty development activities in geriatrics. When asked for barriers to GIM faculty teaching geriatrics, 70 per cent of GIM chiefs cited time and 46 per cent cited attitude or motivation. Additionally, insufficient resources were commonly identified as a barrier. Time and resources were deficient in three specific areas-clinical, teaching, and faculty development. Attitudinal barriers included perceptions that geriatrics did not require unique knowledge or skills and an already crowded teaching agenda for GIM faculty.
CONCLUSION: The barriers to teaching of geriatrics by GIM faculty are substantial. Overcoming them will require significant financial, educational, and clinical resources.

**DOES IT MATTER HOW YOU WRITE THE QUESTION?** R. Kolarik[1], M. Elnicki[1]; [1]University of Pittsburgh, Pittsburgh, PA *(Tracking ID #47836)*

BACKGROUND: The University of Pittsburgh provides primary care experience for its junior medical students in a 12-week community ambulatory medicine course (CAMC). CAMC consists of four 3-week outpatient rotations in internal medicine (IM), pediatrics (Ped), family medicine (FM) and an elective. Students' performance in CAMC is measured through faculty descriptive evaluations, an objective structured clinical exam (OSCE), and a faculty-written multiple choice exam (MCE). In past years, the MCE has not shown strong correlation with the OSCE scores or the descriptive evaluations. We questioned whether reformating the test to include only NBME step II style questions would improve correlation of the MCE with the OSCE and descriptive evaluations.
METHODS: A 100-question MCE has been used in CAMC since 1999 and included a variety of question formats. In 2001, all questions were reformatted using the following criteria: clinical vignettes as stems, single best-answer (A-type), and no eponyms. The content of the questions was kept the same. The MCE was then administered following the first 12-week rotation of the year. Student MCE scores were correlated with the results of the descriptive evaluations (1–5 Likert scales) and the OSCE. The OSCE exam was not reformatted. Pre and post reformatting test scores were both examined for internal consistency (KR-20) and correlations.
RESULTS: We compared results from the first CAMC blocks from 1999–2001. For students taking the MCE prior to 2001 (N = 75), mean score = 72.2 (SD 6.9). After reformatting, 38 students had a mean score of 69.3 (SD 7.3). The mean MCE score dropped significantly after reformatting ($p < .05$). OSCE mean score for the 1999–2000 group was 76.4 (SD 5.5) and in 2001 was 72.3 (SD 5.1) ($p < 0.01$). Prior to reformatting the MCE, the correlation of the MCE with the OSCE was 0.35 ($p < 0.01$). After reformatting, the correlation with the OSCE improved to 0.50 ($p < 0.01$). The correlations between the MCE and the descriptive evaluations prior to reformatting were: IM .03, Ped .01, FM −.05, and elective .17. After reformatting, the correlations did not improve, and were: IM −.002, Ped −0.01, FM −.04, and elective .08. IM, FM, and Ped descriptive evaluations did not correlate with each other. KR-20 reliability estimates on the MCE before and after the test was reformatted were 0.72 and 0.70 respectively.
CONCLUSION: Formatting a MCE using only single best answer questions modestly improved the correlation of the exam with an OSCE. The strong correlation with the OSCE provides construct validity for the MCE. The reliability of the MCE was high before and after reformatting. Poor correlation of the MCE with descriptive evaluations suggests that they measure different domains. The lack of correlation among descriptive evaluations suggests either a need for more reliability in this type of evaluation, or that individual performance varies among different ambulatory rotations.

**EFFECT OF TWO MODALITIES OF CLINICAL GUIDELINES IMPLEMENTATION ON BRONCHODILATORS PRESCRIPTION AMONG INPATIENTS WITH COMMUNITY-ACQUIRED PNEUMONIA.** O. Lamy[1], R. Stoianov[1], A. Sequin[1], B. Burnand[1], J. Fitting[1], B. Yersin[1], J. Cornuz[1]; [1]Department of internal medicine, Lausanne, Switzerland *(Tracking ID #51425)*

BACKGROUND: Bronchodilators (BD) are used in patients hospitalised for community-acquired pneumonia (CAP) and who have neither chronic obstructive pulmonary disease (COPD) nor asthma. This practice is not supported by evidence of effectiveness. To improve the appropriateness of BD prescription in CAP inpatients, we developed in 1998 a local evidence based medicine guideline (GL) which recommended when (for patients with COPD or asthma) and how long (clinical appreciation every 3 days) BD should be used in CAP inpatients. We aimed to measure the impact, if any, of two modalities of GL implementation and to assess the additional benefit of an active vs a passive implementation.
METHODS: We measured the BD prescription rate and duration in all consecutive CAP inpatients admitted in general wards before any GL (year 1997), after a passive implementation by medical grand rounds and GL diffusion through mailing (year 1999), and finally after adding a one-page reminder in CAP patient's medical chart highlighting our recommendations (year 2000).
RESULTS: 131, 161 and 158 patients were included in 1997, 1999 and 2000, respectively. The mean age (70*17 in the three groups), the distribution of male gender (57%–60%–61%, $p = 0.4$), and of a severe prognosis score index IV/V (63%, 65%, 60%, $p = 0.6$) were similar in the three groups. Among patients without COPD or asthma, BD prescription rate decreased from 38% (35/93) in 1997 to 30% (35/115) in 1999 and to 22% (21/97) in 2000 (p for linear trend = 0.02). Furthermore, the average BD prescription duration decreased from 11 (1997) to 8 (1999) and to 6 days (2000) ($p = 0.02$). Interestingly, BD prescription rate among patients with COPD or asthma did not change (91%, 93%, 90%), whereas the mean BD prescription

duration showed a non-significant trend for decrease (12, 10, 8 days, p = 0.2). Death rate among all patients was similar between 1997 (5%), 1999 (7%), and 2000 (6%).
CONCLUSION: Although not using a randomized design, this study indicates that GL for the use of BD might enable more appropriate and cost-saving care by restricting BD use to the patients who may benefit from this treatment, without apparently impairing their outcomes.

**RESPECTING THE LIFECYCLE: RATIONAL WORKFORCE PLANNING FOR A SECTION OF GENERAL INTERNAL MEDICINE.** M. Linzer[1], M. Rosenberg[1], J. Mcmurray[1], J. Glassroth[1]; [1]University of Wisconsin-Madison, Madison, WI *(Tracking ID #50401)*

BACKGROUND: Demographic shifts in the medical profession have changed the landscape of the physician workforce. In particular, many young women physicians are taking temporary leaves and working part time due to pregnancy and child raising, while older men are also opting to practice part time prior to retiring. We assessed the impact of such changes on the academic workforce in a hypothetical section of general internal medicine.
METHODS: We used the medical literature and data collected from the US Physician Worklife Study to make assumptions concerning physician age, gender, children, parental leave, pregnancy, retirements and work hours including part time practice. We also incorporated "shocks" to the system, such as personal illness or death in family members. We then used a Monte-Carlo simulation to assess the impact on the number of clinical full time equivalents (FTE's) in the section's workforce.
RESULTS: For a section of 30 full time physicians (16 clinicians, 8 clinician educators and 6 research scientists), we asumed there were approximately 22 clinical FTEs, and that any fewer than this could compromise workflow. Under the assumptions provided, at the end of 18 months the section would have an average deficit of 2.2 clinical FTEs (10%). However, there is a wide range around this figure: 95% of the time the section would be at least 0.5 FTEs or 3% short, while 5% of the time, the section would need 4.3 (or 20%) additional physicians to cover its clinical responsibilities without infringing upon other aspects of its academic mission.
CONCLUSION: Life events can create serious staffing problems in primary care academic units. Advance planning for predictable life events by developing, for example, a pool of flexible part time or "float" physicians could prevent staffing shortages, preserve morale, and maintain the quality of patient care and medical education.

**WORKLIFE, SATISFACTION AND GENDER CLIMATE IN A SECTION OF GENERAL INTERNAL MEDICINE.** M. Linzer[1], S. Foster[2], M. Rosenberg[2], C. Gilles[2]; [1]University of Wisconsin-Madison, Madison, WI; [2]University of Wisconsin, Madison, WI *(Tracking ID #51080)*

BACKGROUND: Two years ago, the UW Section of General Internal Medicine (GIM) endorsed a set of goals for the next 5 years. To assess progress in meeting these goals, we used new and previously validated items to develop the WIsconsin PRofessional WorkLife ("whipporwill") Survey and measure global satisfaction, stress and burnout, work control, work/family conflict, gender climate, teamwork, fairness and mentoring efficacy.
METHODS: Members of the UW Section of GIM (n = 36) were given a 54 item confidential survey (78% response rate not including the Section Head after two mailings by an independent research group). Satisfaction, work control and gender climate were measured on scales from 1 to 5, with 5 = most positive. A 4 item gender climate scale had a reasonable alpha (.66), while a 10 item mentoring efficacy scale (adapted from Jackson et al, JGIM. 2000;15[suppl 1]:163) showed excellent internal consistency (alpha = .96). Comparisons were made between genders and between UW faculty and published norms.
RESULTS: Compared with national norms for general internists, UW faculty were significantly more satisfied with their jobs (4.0 vs 3.5, p < .05). Stress and burnout were comparable to national norms. In this section where women comprise the majority of faculty (53%) and leaders (67%), gender climate was positive and comparably rated by women and men (3.9 vs 3.8, respectively, p = .77) Compared with UW men, women noted less control of their clinic schedule (2.4 vs 3.0, p < .05), while compared with national norms for male physicians, UW men noted significantly less control of office space, facilities and supplies (1.9 vs 2.8, p < .001). Many faculty described little or no mentoring; when present, the mentor or committee was best at listening to concerns (92% of respondents) and least effective at enhancing academic contacts (20% of respondents). The most frequently endorsed problem by section faculty was work family conflict (75% of respondents, no significant gender difference). Finally, despite high levels of satisfaction, reasonable stress and a positive climate, 46% of faculty said yes (21%) or maybe (25%) when asked if they planned to decrease their work hours within 5 years.
CONCLUSION: 1) Outcomes of professional worklife can be useful in assessing progress toward institutional goals; 2) gender climate can be quantified, and results can be positive in a setting with a high proportion of female faculty and leaders; and 3) faculty workforce projections should incorporate the desire among section members to decrease work hours.

**DO YOU KNOCK ON WOOD? RESIDENT SUPERSTITIONS RELATED TO CALL.** M.S. Mahoney[1], K. Sherer[2], K.B. Desalvo[1]; [1]Tulane University, New Orleans, LA; [2]Kaiser Permanente, Honolulu, HI *(Tracking ID #51379)*

BACKGROUND: Many house staff engage in superstitious behaviors to enusure a "good" call. Our purpose was to describe the superstitious behaviors of house officers in an internal medicine training program and evaluate potential predictors of such behaviors.
METHODS: We surveyed all 95 house staff in an internal medicine training program using questionnaires and structured telephone surveys. Physician-level data included post-graduate year, sex, age, race, citizenship and specific training program. The participating house officers most recent in-service scores were included in the database. House staff indicating that they employed superstitions were asked what may have influenced this behavior and which superstitions they practice from a list of options. They were also allowed to provide their own examples of such behaviors.
RESULTS: The mean age of respondents was 29 years [range 25 – 43]. 55% were male and 41% were in their internship year. 52% were Categorical medicine trainees; 24% in the Medicine/Pediatrics program. The remaining 24% were training in either the Preliminary Medicine, Medicine/Preventive Medicine, Medicine/Neurology or Medicine/Psychiatry programs. Most (63%) were white; 10% were black, and 8% Hispanic. The remaining 19% identified themselves as Asian, Indian or Middle Eastern. 60% of the house staff reported that they employ superstitions to have a "good call". In comparing residents that employed superstitions versus those who did not, the groups were equal in all respects except resident level of training (p = 0.043). This relationship held true in multivariable regression controlling for physician characteristics. There was also no significant difference in in-service scores between the two groups (p = 0.708). The two most common superstitions were the belief that call can be "jinxed" by discussing call in a positive manner (73%) and "knocking on wood" (54%) and avoiding certain locations in the hospital (42%). Influences on the development of superstitious behavior included a reported history of personal success (73%) and the influence of other house officers (60%). Two residents reported feigning superstitious behavior only in response to peer pressure. One-quarter of respondents reported other superstitious behaviors not listed on the survey that included praying, dancing the "German Shuffle", not touching their beeper, and using a variety of amulets, including lucky fruit and a lucky radio.
CONCLUSION: Despite their grounding in the scientific method, superstitious behavior to ensure a "good call" is common in this internal medicine residency program. Upper level house staff were more likely to be superstitious, suggesting it was acquired during residency and probably a learned behavior, regardless of background. There is also a suggestion that peer pressure plays a significant role in the development of the practice of superstitious behavior.

**HOW INTERNS SPEND THEIR WORK TIME IN A UNIVERSITY HOSPITAL IN BUENOS AIRES.** M.P. Majdalani[1], R. Mejia[1], R. Fayanas[1], E.J. Perez-Stable[2]; [1]Universidad de Buenos Aires, Buenos Aires, Argentina; [2]University of California, San Francisco, San Francisco, CA *(Tracking ID #52257)*

BACKGROUND: We explored the use of work time by interns at our university hospital to evaluate amount of patient contact and learning time as well as feelings and opinions about work load.
METHODS: Semi-structured in depth interviews and focus groups were conducted with interns in order to develop a quantitative survey. Every PGY1 in internal medicine at the main teaching hospital in Buenos Aires participated.
RESULTS: Of the 22 interns, 10 were men (45%). Interns claimed to work an average of 12.6 hrs per day excluding their overnight call days after 20:00. The average call schedule was every 4 nights. A majority of that daily time (7.5 hrs) was spent on 3 separate daily rounds (with team, chief resident and attending). On average, 3.7 hrs per day was spent performing administrative paper work, transporting patients and other non-clinical tasks. Interns reported sleeping an average of 3.5 hrs per day and eating lunch only twice a week on average. Only 2 hrs per week were spent in formal didactic teaching sessions and there is no protected time to study. In the focus groups interns reported that the work schedule had adverse effects on how they felt emotionally and physically. Fatigue and stress diminished their professional performance and impacted negatively on their mood and social life. Learning occurs mostly by listening to academic discussions among more experienced physicians. Residents regret the lack of access to more scheduled educational activities.
CONCLUSION: Residents perceive negatively the excessive time they spend at the hospital and the lack of educational activities. Changes must be made to protect the quality of training program and the well being of residents in Buenos Aires University.

**PATIENT-DOCTOR COMMUNICATION: DO PATIENTS HEAR WHAT DOCTORS TELL THEM?** M. Kelley[1], D.F. Marineau[1], M. Nadkarni[1]; [1]University of Virginia, Charlottesville, VA *(Tracking ID #52247)*

BACKGROUND: Studies evaluating patient-doctor communication indicate that many patients may not understand what physicians have told them concerning their illness, nor instructions provided to improve their health. This phenomenon may be especially salient in clinic settings within residency training programs. We studied the level of understanding of physician communication by patients at University Medical Associates (UMA), a resident faculty continuity practice at the University of Virginia Health System.
METHODS: We interviewed a convenience sample of 63 resident physicians and their patients immediately following a scheduled patient encounter at UMA. Resident physicians and their patients were each separately asked to list (up to 3) of the most important things they discussed during their visit. The separate interviews were conducted within 5 minutes of the end of the encounter. Patient answers were scored on a 3-point scale based on congruence with physician description. Information regarding patient demographics, education level, number of medications and socioeconomic status and physician gender and year of residency was analyzed.
RESULTS: Patients had average age of 56, education level of 7th grade, and the average number of medications was 6.4 with range from zero to twenty-five. SES varied between below poverty level to 4x poverty level. Fourteen patients (22%) showed no congruence with physician report. 31 patients (49%) showed only partial congruence with physician report. Only 18 patients (29%) completely matched physicians' description of the most important recommendations discussed during the visit. Trends toward worse patient understanding and retention included lower patient educational level, increased number of medications, increased patient age and male physician gender, though small sample size may have precluded statistically significant findings.
CONCLUSION: This study highlights the tremendous degree of miscommunication, which may occur during ambulatory patient encounters in a resident continuity practice setting. Development of focused educational interventions, both for physicians and patients, may be necessary to improve patient understanding of critically important recommendations or instructions. New tools for assessing patient understanding of physician recommendations may also improve communication. Improvement of communication has potential to lead to improved adherence to medical advice and subsequent improved patient outcomes.

**COMPARATIVE VALUE OF CLINICAL INFORMATION IN MAKING A DIAGNOSIS.**
R.J. Markert[1], E.C. Rich[1], A.C. Maio[1], B.L. Houghton[1], H. Sakowski[1], S. Hillson[2], S. Haist[3]; [1]Creighton University, Omaha, NE; [2]Henepin County Medical Center, Minneapolis, MN; [3]University of Kentucky, Lexington, KY *(Tracking ID #51545)*

BACKGROUND: "Most of your diagnostic information comes from the History" is a well-worn aphorism internists use in teaching medical students and residents about the comparative value of clinical information. Previous studies found 55 to 60% of diagnostic information derived from the history and 20 to 25% each from the physical exam and laboratory/imaging. However, much has changed in diagnostic technology and internal medicine (IM) practice in the almost 20 years since IM physician perceptions were assessed regarding the relative importance of clinical information.
METHODS: At the outset of the 2001 – 02 academic year, general internal medicine faculty (n = 33) and IM residents (n = 168) from three diverse training programs were surveyed: Creighton University (n = 87), University of Kentucky (n = 64), and Hennipin County Medical Center (n = 50). Physician perceptions regarding the value of clinical information were assessed as follows: "What percent of the information from your History, Physical Examination, and Laboratory/Imaging do you use in diagnosing a patient?"
RESULTS: For the total sample when making a diagnosis, history is valued .586 (or 58.6%), physical examination .200 (20.0%), and laboratory/imaging .213 (21.3%). Residents valued laboratory/imaging more than faculty (.221 vs. .175; t test p = 0.024). No differences were found for year of residency (ANOVA p > 0.05) or gender (t test p > 0.05).
CONCLUSION: It is noteworthy that despite the continuing proliferation of laboratory and imaging technology, the patient's history remains the preeminent source of diagnostic information. Indeed, reliance on laboratory/imaging information was significantly less for faculty internists than for the physicians in training.

**MEDICAL PROFESSIONALISM IN INTERNAL MEDICINE RESIDENCY.**
J.M. Mcassey[1], M.A. Mcneil[1], R.M. Arnold[1]; [1]University of Pittsburgh, Pittsburgh, PA *(Tracking ID #51489)*

BACKGROUND: There is a paucity of data regarding internal medicine physicians-in-training and their knowledge of medical professionalism. Few residency programs question the importance of professionalism, yet few have specific processes to assess and cultivate these values and behaviors. We performed this study to assess the decision making of internal medicine residents about dilemmas in medical professionalism in anticipation of implementing a professionalism curriculum.
METHODS: A questionnaire, containing 12 case-based vignettes with multiple choice answers, were hand delivered to 53 internal medicine residents at the University of Pittsburgh Medical Center. The vignettes each corresponded to common dilemmas in medical professionalism: physician impairment, conflict of interest, sexual harrassment, confidentiality, documentation fraud, sensitivity to diversity, abuse of power, and arrogance. The questions were either adapted from American Board of Internal Medicine (ABIM) literature or developed with ethics consultation. The confidential survey contained no identifying information, yet did ask baseline demographics. The analysis of the data was reported as the frequency of the "best" answer, in accordance to ABIM guidelines, for each question.
RESULTS: A total of 44/53 surveys distributed to residents (83%) were returned and analyzed. Exactly 50% of respondants were female, with age range between 25 – 32 years and equally split between PGY1,2, and 3. Housestaff were most likely to choose "best" answers on the 2 questions dealing with sensitivity to diversity (100% and 95.45%). The questions regarding pharmaceutical representatives and conflict of interest had much lower frequencies: 35.71% and 41.86%. The question that was the most challenging was based on physician impairment. Not one resident answered correctly that an impaired physician should be reported to the State Board. More than 1/2 of respondants reported not knowing where to report unprofessional behavior, as well as never receiving training in medical professionalism.
CONCLUSION: We have demonstrated that a large number of residents were unable to answer questions regarding specific professionalism dilemmas in acceptance to the published guidelines. It is unclear whether the discrepancies reflect a knowledge base deficit or a disagreement with the professionalism guidelines advocated by the ABIM. Further studies are needed to explore the cause of these observed discrepancies.

**MISTREATMENT DURING CLINICAL TRAINING: RESIDENTS' EXPERIENCES IN ARGENTINA.**
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BACKGROUND: To assess the prevalence and nature of resident mistreatment during clinical training in Argentina.
METHODS: Based on a literature review, individual qualitative interviews and focus groups, we developed a self-administered questionnaire. Thirteen events that could be experienced by residents were listed and included being shouted at, humiliated in public, shown lack of respect for work completed, given extra call as punishment, sexual harassment, racial discrimination, and being pushed or hit. Ten possible perpetrators were described in the questionnaire (e.g., senior residents, chief residents, attending physicians). Residents were asked to record whether they had ever experienced these events, how often, and to identify the category of the responsible person. The survey was distributed anonymously to residents from training programs in three hospitals (university, public and private) in Buenos Aires.
RESULTS: Of 421 residents 321 (76.2%) completed the questionnaire, and 55% of the respondents were women. 72% of residents were in internal medicine or pediatrics programs, 22% were in surgical programs including gynecology, and 6% were pathology or radiology residents. Mistreatment at least once during residency was reported by 82.2% of the residents. On average each resident reported 6 episodes of mistreatment. Being criticized for not completing administrative work (23.2%), being given extra call as punishment (22.5%), perceiving lack of respect for their work (17.3%), being shouted at (16.5%) and being humiliated in public (13.7%) were the most frequently reported mistreatments. Being hit or pushed (6%), sexual harassment (3%), or racial or religious discrimination (2%) were reported by fewer residents. The most common perpetrators were senior residents (25.5%), chief residents (19%), attending physicians (14%), and nurses (8%). Compared to medicine residents, surgical residents were more likely to report being given extra call as punishment (51% vs 26%, p < .001), shouted at (60% vs. 9%, p < .001), and pushed or hit. (14% vs. 4%, p = .015).
CONCLUSION: Residents in training programs at three hospitals in Buenos Aires commonly experience mistreatment perpetrated by peers and supervisors. A multidisciplinary approach is needed to address this problem in the clinical training environment.

**PROVIDING STUDENTS FEEDBACK: OPPORTUNITY KNOCKS IN THE AMBULATORY SETTING.**
J.L. Mitchell[1], J.L. Sebastian[1], D.E. Simpson[1]; [1]Medical College of Wisconsin, Milwaukee, WI *(Tracking ID #50806)*

BACKGROUND: Giving feedback is an essential element of medical education but many students report they receive inadequate feedback. This study aims to describe the feedback students receive in several teaching environments.
METHODS: During their internal medicine rotation, 36 third year medical students were each given a personal digital assistant (PDA) loaded with forms to log patient encounters and daily teaching activities. For each patient encounter, students recorded information about feedback received for their oral presentations. In addition, students recorded whether submitted patient write-ups were returned and who, if anyone, provided feedback.
RESULTS: The 36 students gave 564 oral presentations (an average of 16 per student). Just over half (52%) were in the ambulatory setting. Students received feedback on 53% (n = 266) of their presentations. An attending was present for 91% of those presentations, but the presence of an attending did not predict whether feedback was received (p = 0.46). Ambulatory presentations received feedback more frequently than inpatient presentations: 54% vs. 40%, respectively (p < 0.01). Fifty-nine percent of presentations given in team workrooms received feedback, compared to 32% of presentations given in hallways (p < 0.01). In addition, the 36 students submitted 241 patient write-ups (an average of 7 per student). Most (79%) were in the inpatient setting. Students received feedback on 68% (n = 164) of their write-ups, more often from attendings (54%) than residents (31%) (p < 0.01). For write-ups, receiving feedback was independent of ambulatory or inpatient setting (p = 0.49).
CONCLUSION: Students reported receiving feedback for only about half of their oral presentations and for 68% of their write-ups. Workroom presentations were significantly more likely to receive feedback than hallway presentations. Since only one fourth of rotation was in the ambulatory setting but one half of the presentations occurred there, the ambulatory setting provided proportionately more opportunity for giving presentations and receiving feedback. Increased efforts are needed to provide effective and efficient feedback to learners in all settings.

**PATIENT'S SATISFACTION TO THE HUMANISTIC QUALITY OF MEDICAL STUDENTS IMPROVED WITH THE INTRODUCTION OF TUTORIAL SESSION AND THE MODIFICATION OF OBJECTIVE STURUCTURED CLINICAL EXAMINATION.**
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BACKGROUND: To determine whether educational intervention make any difference in the actual patient's satisfaction to the humanistic quality (HQ) of the medical students in the university hospital outpatient setting.
METHODS: This study was conducted from April to October in 1999 and 2001 respectively, on final year medical students when they rotated through general medical outpatient clinic for 2 weeks. Medical students saw patients for 40 hours in total and experienced a variety of educational intervention for 20 hours. In 2001, they were exposed to 7 hours of tutorial sessions, 6 hours of role-playing on medical interview and Objective Structured Clinical Examination (OSCE) which included 8 stations, compared to 7 hours of lecture, 6 hours of role-playing and OSCE which included 4 stations in 1999. Patients rated the student's HQ by using 6 items from the American Board of Internal Medicine Patient Satisfaction Questionnaire (PSQ) with five ordinal scale (from 1 = poor to 5 = excellent). PSQ ratings in 2001 were compared with the ratings in 1999.
RESULTS: A total 177 medical students were evaluated by 660 patients with PSQ. The characteristics of students and patients did not differ between 1999 (82 students and 287 patients) and 2001 (95 students and 373 patients). PSQ items showed a good internal consistency with Cronbach's alpha of 0.83. In 1999, average PSQ score was 3.34 ± 0.65, with no difference between a student's gender. Moreover, the mean scores of "answering questions" item (2.95 ± 0.97) and "clear explanations" item (3.22 ± 0.93) were significantly lower than that of other 4 items (p < 0.001 by Scheffé test). In 2001, average PSQ score was 3.68 ± 0.63, and was significantly higher than that of 1999 (p < 0.0001). The average score of female students were significantly higher than that of male students (3.78 ± 0.68 vs. 3.49 ± 0.62; p < 0.0001), and individual items in female students did not show significant difference among them (p = 0.327).
CONCLUSION: Patient's satisfaction to medical student's HQ improved markedly by introduction of tutorial sessions and modification of OSCE. The low scores to "answering questions" and "clear explanations" which were the main findings of our investigation in 1999 disappeared in 2001. The effect of this educational intervention was remarkable on female students.

**WHERE SHOULD WE TRAIN OUR RESIDENTS? RESULTS FROM ACE (AMBULATORY CARE EXPOSURE) PROJECT.**
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BACKGROUND: Over the last 10 years, there has been an increased emphasis on the training of medicine residents in the outpatient setting. However, there is a paucity of studies evaluating the influence of the use of community base practices on resident education. The purpose of this

study is to determine whether the setting for ambulatory care training influences residents education by exposing them to the appropriate spectrum of diagnoses.
METHODS: Internal medicine residents attended hospital-based medical clinic, faculty practice or private practices for ambulatory training. We asked residents to report all their outpatient encounters for a period of 3 months using a modified version of NAMCS survey containing questions regarding patient demographics, chief complaints, main diagnosis for the visit, and significant comorbidities. We also analyzed the 1996 NAMCS dataset to generate lists of diagnoses seen by internists. Sampling weights were applied to generate national estimates of total number of visits. Diagnostic clusters (version 4.1 1998) developed by Schneeweiss et al were used to group diagnostic codes representing similar conditions. No statistical analysis were used to compare residents' and NAMCS data as the later data were weighted national estimates.
RESULTS: 572 patient encounter surveys were completed and returned (medical clinic 282, private practices 212 and faculty practice 78) by 23 interns and residents (62.2%). Housestaff in the medical clinic reported 53 different diagnostic clusters as the main diagnosis for the visit, while those in private practices and faculty practice reported 42 and 37 respectively (NAMCS 110 diagnostic clusters). Residents reported 15.7% of other non clusterable diagnosis. When compared to the 20 most common diagnostics clusters reported in NAMCS clinic residents reported 15 of these clusters as their top 20, while private and faculty practice residents reported 14 and 13 respectively.
CONCLUSION: In the first phase of the ACE project, residents who practiced in a medical clinic, in a survey, reported seeing a greater diversity of patient diagnosis and having more independence in managing their patients. This study shows that residents in medical clinic does encounter more diverse diagnostic clusters than those in the community practices however the difference was much smaller for the top 20 diagnostic clusters. Therefore, our study seems to indicate no clear benefit in using community based private offices for residents' training. However, further multicenter studies are needed to confirm our results and to evaluate the full effect of ambulatory care practice settings on resident education.

**MEASURING WHAT WE WANT TO MEASURE: USING VIGNETTES IN CLINICAL EDUCATION.** J.W. Peabody[1], J. Luck[2], P. Glassman[3], S. Jain[4]; [1]Institute for Global Health/UCSF/SF VAMC, San Francisco, CA; [2]UCLA, School of Public Health, Los Angeles, CA; [3]VA Medical Center, Los Angeles, CA; [4]SF VA Medical Center, San Francisco, CA *(Tracking ID #51282)*

BACKGROUND: Valid case mix adjusted measures of clinical teaching programs, although much sought after, have been difficult for educators to develop. We compared three methods for measuring quality of care in 4 resident teaching programs.
METHODS: For the first method, we developed open-ended, computerized vignettes that simulated an actual outpatient encounter. The computerized vignette were given to 60 medicine residents and faculty. The vignettes solicited responses for history, physical, testing, diagnosis, and treatment. Scoring criteria were based on national criteria and revised using a modified Delphi technique. For the second method, we asked the same 60 generalists to see 41 standardized patients (SPs), who presented unannounced into their clinics. Following the visit, the SPs scored the clinical encounters using identical criteria to the vignettes. For the third method, we obtained and abstracted the medical record for each visit, again using identical scoring criteria.
RESULTS: Scores on vignettes more closely approximated the gold standard SPs than the medical record ($p < .005$). The vignettes reliably predicted SP scores when the data was disaggregated by individual case, by location at the four training programs, by level of training, and by history, physical, testing, diagnosis, and treatment ($p < .005$).
CONCLUSION: Computerized vignettes are a comprehensive method for measuring clinical performance in the outpatient setting of a teaching program. Compared to medical record abstraction, vignettes are more accurate and logistically easier to use. Carefully designed, open-ended vignettes may be a helpful innovation when evaluating a range of interventions that are designed to improve educational programs or the quality of care.

**THE IMPACT OF RACIAL AND ETHNIC DISCRIMINATION ON ACADEMIC FACULTY MEMBERS.** N.B. Peterson[1], R.H. Friedman[1], A. Ash[1], P.L. Carr[1], S. Franco[1]; [1]Boston University School of Medicine, Boston, M *(Tracking ID #46526)A (Tracking ID #46526)*

BACKGROUND: Little is known about the experience of minority faculty, and, in particular, their experience of racial and ethnic discrimination at their institutions. The objective of this study is to determine what effect self-reported experiences of racial/ethnic discrimination have on various outcomes, including career satisfaction, academic rank, and number of peer-reviewed publications among faculty of U.S. medical schools.
METHODS: Surveys were mailed in 1995 to a stratified sample of 3332 medical faculty at 24 randomly selected U.S. medical schools. 60% of eligible faculty responded. Faculty were divided into 3 racial categories as defined by the AAMC: underrepresented minority [(URM) — all Blacks, Native Americans/Alaskan natives, Mexican Americans, and Puerto Rican Hispanics], non-underrepresented minority [(NURM) — all other Hispanics and Asians], and majority faculty. Bias was defined as a "yes" response to, "In your professional career, have you personally encountered racial/ethnic discrimination (unfair or injurious distinction or treatment) by a superior or colleague?" Linear regression was used to estimate the effects of having experienced racial/ethnic discrimination on feelings of welcomeness, likelihood of leaving the current institution, career satisfaction, salary, number of publications, and number of grants funded in the previous two years. Logistic regression was used to estimate the effect on attainment of senior rank (full or associate professor). The following variables appeared in all models: medical school, specialty, race, gender, seniority (years since first faculty appointment), and seniority squared (to capture the declining influence of additional years on outcomes).
RESULTS: Of 1833 academic faculty analyzed, 82% were white, not of Hispanic origin, 10% URM, and 8% NURM. URM and NURM faculty were substantially more likely than majority faculty to perceive racial/ethnic bias in their academic environment (OR 4.9, $p < 0.01$ and OR 2.3, $p < 0.01$, respectively). Nearly half (48%) of URM and 26% of NURM had personally experienced racial/ethnic discrimination by a superior or colleague. Faculty with such experiences had lower career satisfaction scores than other faculty ($p < 0.01$), were less likely to feel welcomed at their institution ($p < 0.01$), and were somewhat more likely to leave academic medicine within five years ($p = 0.08$). However, they received comparable salaries and number of grants funded, published comparable numbers of papers, and were similarly likely to have attained senior rank (all $p > 0.1$).
CONCLUSION: Many minority faculty experience racial/ethnic discrimination in academic medicine. Faculty with such experiences have lower career satisfaction. However, of those who remain in academic medicine, they receive comparable salaries, publish comparable numbers of papers, and are similarly likely to attain senior rank.

**TRAINING US MEDICAL STUDENTS TO CARE FOR THE CHRONICALLY ILL: IDENTIFYING GAPS IN CURRENT UNDERGRADUATE CURRICULA.** H.H. Pham[1], L. Simonson[1], D. Elnicki[2], L.P. Fried[1], A.H. Goroll[3], E.B. Bass[1]; [1]Johns Hopkins University, Baltimore, MD; [2]University of Pittsburgh Medical Center Shadyside, Pittsburgh, PA; [3]Partners Healthcare, Boston, MA *(Tracking ID #50399)*

BACKGROUND: The growing prevalence of chronic illness has important implications for the training of nearly all physicians and especially primary care physicians. We assessed the degree to which undergraduate medical curricula explicitly address important competencies in chronic illness care.
METHODS: We performed in-depth interviews of directors of required courses (internal medicine, pediatrics, family practice, and ambulatory care clerkships, longitudinal care courses, and other courses with relevant content) at 16 representative U.S. medical schools (selected by geography, curricular reform activity, public/private status, and primary care orientation of graduates). Course directors reported: 1) whether their course addressed each of 49 competencies relevant to chronic illness care using each of 5 curricular methods (written objectives, course materials, observational student evaluations, written/oral exams, or other required activities); and 2) their rating of importance of each competency for their course and for the overall undergraduate curriculum on a 5-point Likert scale (1 = not important, 5 = essential).
RESULTS: All 70 eligible course directors responded. They gave mean course importance ratings of >3 to 29 (59%) of the 49 chronic care competencies, and gave highest ratings to screening for abuse, awareness of patients' socio-cultural perspectives, protection of patient confidentiality, and the ability to discuss end-of-life expectations. For only 14 (29%) of the competencies did a majority of course directors report using 2 or more curricular methods. Only one competency was included in course objectives (screening for abuse), and only one competency (managing dementia/cognitive impairment) was included in exams for a majority of courses. The reported number of curricular methods used to address each competency was correlated with a course director's assessment of its importance in the course, with r2 ranging widely from 0.27 to 0.80 (p-values < 0.05).
CONCLUSION: In this representative sample of medical schools, the directors of required clinical courses agreed about the importance of many competencies in chronic care, but reported considerable variation in their level of commitment to teaching the competencies and whether they explicitly addressed the competencies in their courses. To improve training in chronic care, medical schools need to give greater attention to how they can address important competencies in chronic care.

**CLINICIANS' PERCEPTIONS OF THEIR ROLE AS PATHOPHYSIOLOGY WORKSHOP PRECEPTORS.** J.M. Riddle[1], L.S. Hauge[1], S.H. Shah[1], S.M. Mathew[2]; [1]Rush Presbyterian St. Luke''s Medical Center, Chicago, IL; [2]Cook County Hospital, Chicago, IL *(Tracking ID #52107)*

BACKGROUND: The M2 Pathophysiology course at Rush Medical College was redesigned to decrease lecture hours, increase workshop hours, and incorporate clinical faculty in student-centered teaching methods. Eight groups of 15 – 16 students meet with a faculty preceptor for two-hour workshops twice a week. Preceptors were recruited from clinical faculty in internal medicine who received positive evaluations for their clinical teaching. A two-part, six-hour faculty development workshop oriented faculty to techniques for workshop facilitation. The purpose of this study is to describe clinicians' perceptions of their role as preceptors in a basic science course.
METHODS: All of the preceptors completed end-of-quarter evaluations, which consisted of open-ended questions on their course preparation, impact on their clinical work, and experiences as preceptors. The survey also included 17 Likert-scale items on student participation and faculty facilitation of the workshops.
RESULTS: Faculty reported an average of 5 – 7 hours per week of preparation, most of which was review of pathophysiology content. Preceptors reported enhanced understanding of their patients' diseases, and increased confidence in clinical teaching. Faculty with greater clinical responsibilities reported a negative impact on clinical work due to the time required for the course. The highest rated items for faculty facilitation were modeling professional communication skills, efficiency of workshop in meeting learning objectives, and maintenance of a positive learning environment. Faculty rated their teaching lowest in terms of overall satisfaction with their students' workshop experience, overall satisfaction with performance as a facilitator, and adherence to a student-centered environment.
CONCLUSION: Findings about faculty self-efficacy as workshop preceptors depict the need for future faculty development in the practice of student-centered teaching methods. Major challen

**EARLY DETECTION OF DEMENTIA: IMPORTANCE OF INTERVIEWING SKILLS.** D.W. Rudy[1], C.H. Griffith[1], T. Caudill[1], S.A. Haist[1], J. Castle[1], N.J. Stiles[1], J.F. Wilson[1]; [1]University of Kentucky, Lexington, KY *(Tracking ID #51716)*

BACKGROUND: In spite of the benefits of the early recognition of dementia, physicians may fail to detect, evaluate, and treat cognitive decline until it is rather advanced and less amenable to interventions. This discrepancy may be due to in part to failure to recognize subtle clues of cognitive decline along with communication barriers between physicians and elderly patients

that may decrease patient acceptance of the problem and willingness to undergo further evaluation and treatment. The purpose of our investigation is to determine how well internal medicine residents can detect early cognitive decline and the effectiveness of their communication skills in eliciting the patient's perspective, being empathetic, and negotiating a diagnostic plan.
METHODS: Internal Medicine residents participated in a clinical performance examination (CPX) with a standardized patient (SP) portraying an elderly patient who presents for routine follow-up. The SP gives clues to cognitive decline during the interview such as problems with remembering to take medications, difficulty with driving, word finding, and trouble concentration when reading. The SP uses an item-specific checklist to assess if the resident assesses for cognitive decline including performing the Mini-Mental Status examination (MMSE) and general communication skills such as asking open-ended questions, eliciting the patient's perspective, and empathetic statements.
RESULTS: Sixteen residents participated in the CPX. Eleven residents performed the MMSE. However only 7 of these residents explained the purpose of the MMSE and/or the meaning of the results. An overall score from the sum of checklist items evaluating the residents' ability to detect cognitive decline was compared to the sum of checklist items assessing general interviewing skills. There was high degree of correlation ($r = 0.69$, $p = 0.0028$) between residents' ability to assess for cognitive decline efforts with general interviewing skills.
CONCLUSION: Residents with good general interviewing skills are more likely to detect early cognitive decline in elderly patients and counsel them appropriately. Further investigations are needed to determine if interventions to improve interviewing skills will improve residents' ability to diagnose, evaluate and treat dementia in an early stage.

**RELATIONSHIP BETWEEN ABIM CERTIFYING EXAMINATION (ABIMCE) PASS RATE AND INTERNAL MEDICINE PROGRAM CHARACTERISTICS.** S.B. Sader[1], L.J. Cation[2]; [1]University of Illinois College of Medicine, Peoria, IL; [2]University of Illinois at Peoria, Peoria, IL *(Tracking ID #51875)*

BACKGROUND: The ABIMCE first-taker pass rate is utilized as a key standard to judge and compare programs. This pass rate may be affected by a variety of factors. We sought to identify and describe certain characteristics of internal medicine (IM) programs and relate them to the program's ABIMCE first-taker passer rate.
METHODS: We obtained a list of IM programs from the AMA's GME catalog. We collected data with regard to program types and characteristics (number of residents, presence of fellowships) from FREIDA and program internet websites. We reviewed ACP-ASIM Associates Abstract Competition books from 96–00 and recorded the programs that had winning (W), finalist (Fn) and no abstracts (Z). We obtained the program ABIMCE three-year first-taker pass rates(98–00) from the ABIM website. The statistical analysis was done using 2×2 chi-square test and spearman correlation (SC).
RESULTS: The total number of programs is 387. They identify themselves as military (M)3.36%, university (U)46.77%, and community (C)49.87%. Fellowships (F) were present in 53.2%. The average number of residents per type was M = 33, U = 74 and C = 39. Statistical analysis showed that M programs had a significantly higher pass rate than U or C; this was also true of U compared with C. Programs with fellowships also had a statistically higher pass rate. Programs with a winning abstract had a significantly higher pass rate than those with finalist or none and programs with a finalist had a higher pass rate than those with none. The results from SC showed that a higher first-taker pass rate was associated with: A) higher number of residents (Rho 0.157, $p = 0.002$), B) presence of fellowship (Rho 0.157, $p = 0.002$), and C) success at the ACP Abstract Competition (Rho 0.157, $p = 0.002$).
CONCLUSION: Our study reveals several program characteristics that are associated with a higher ABIMCE first taker pass rate. These include program type (M > U > C), a larger number of residents, the presence of fellowships, and success at the ACP Abstract Competition. The latter finding is intriguing and suggests that scholarly activity in the form of resident research projects is associated with medical knowledge as measured by the ABIMCE. Further study is needed to identify why these characteristics are associated with greater success on the ABIMCE.

**Program Characteristics and Relationship to First-Taker Pass Rate (All p-Values < 0.001)**

| | M | U | C | F | No F | W | Fn | Z |
|---|---|---|---|---|---|---|---|---|
| Takers | 341 | 12482 | 6971 | 14233 | 5561 | 3527 | 6396 | 9871 |
| Passers | 321 | 10961 | 5937 | 12522 | 4697 | 3196 | 5581 | 8442 |
| % Pass | 94.1 | 87.8 | 85.2 | 87.9 | 84.5 | 90.6 | 87.3 | 85.5 |

**DECLINING STUDENT INTEREST IN PRIMARY CARE CAREER: ONE SCHOOL'S EXPERIENCE.** H. Sakowski[1], R.J. Markert[1], E.C. Rich[1]; [1]Creighton University, Omaha, NE *(Tracking ID #52120)*

BACKGROUND: The number of US medical school graduates matching in primary care residencies has declined over the past four years. This study was conducted to determine if interest in primary care has decayed among students matriculating to medical school and/or among students in medical school over the same time period.
METHODS: We surveyed medical students at one institution over a three-year time period to monitor interest in and attitudes toward primary care careers. We compared responses from students in the class of 2002 at the end of their 1st (1999), 2nd (2000) and 3rd (2001) years of school, to those of incoming medical students over the same three-year period. Chi square and Fisher's Exact Test were used to compare survey responses between students interested and not interested in primary care.
RESULTS: Interest in primary care careers during school (class of 2002) declined after each year (83%, 67%, 58%), while interest remained strong in students matriculating (91%, 80%, 82%) over the same time period. Matriculating students interested in primary care as a career, were more likely to feel there were not enough primary care physicians (PCP) ($p < 0.001$), that patients should receive most of their care from PCPs ($p < 0.001$), and that increased life expectancy is due to advances in primary care ($p < 0.001$), compared to students not interested in primary care. For the class of 2002, there were some changes over time between those interested and not interested in primary care. The initial disparity in opinions between the two groups regarding the need for more PCPs dissolved after the first year. In later years, differences in opinions regarding the need to increase incomes of non PCPs ($p = 0.004$), student desire to provide comprehensive care ($p < 0.001$), and their desire to conduct research ($p = 0.02$) developed between the two groups.
CONCLUSION: At our institution, despite continued strong initial interest in primary care among matriculating students, the declining appeal for primary care over time among students in our school mirrors the national trend of fewer primary care residency spots being filled. Efforts to increase the number of students choosing primary care careers chould be directed toward maintaining student interest in primary care throughout medical school.

**DO STUDENTS AND TEACHERS AGREE ON STUDENT PERFORMANCE EVALUATIONS IN THE AMBULATORY CLINIC?** S.M. Salerno[1], J.L. Jackson[2], P.G. O'Malley[3]; [1]Tripler Army Medical Center, Honolulu, HI; [2]Uniformed Services University, Bethesda, MD; [3]Walter Reed Army Medical Center, Washington, DC *(Tracking ID #50791)*

BACKGROUND: The RIME system of evaluation has been described as a reliable and valid technique to assess learners in both ambulatory and inpatient settings. However, few studies have assessed how reliable students are in assessing their own performance using the system.
METHODS: Preceptors and third year medical students undergoing an ambulatory medicine clerkship were asked to assess student performance on the RIME scale after each outpatient clinic encounter. Preceptor and student evaluations, along with written satisfaction surveys of the teaching encounters from the preceptors and learners were collected and matched by a unique identification number on each survey. The non-bedside portion of the teaching encounters was also audiotaped. The number of feedback statements associated with each encounter was measured using audiotape transcriptions. The feedback was categorized as positive or corrective and as general or specific. Quadratic weighted Kappas were used to assess agreement.
RESULTS: Forty-four students and nine preceptors participated in the study. Of 94 encounters studied, 88% had fully completed teacher and student evaluations. Preceptors graded 7% of students as reporters, 46% as interpreters, 45% as managers, and 2% as educators. There was poor agreement among students and teachers (weighted kappa = 0.0374) on grades after each encounter. Of the 71% encounters where teachers and students disagreed, the students assigned themselves a higher grade 76% of the time. In all cases of disagreement, teachers and students differed only by one RIME grade. Learning climate, student perception of the amount of feedback, and overall student satisfaction with the encounter were not associated with student-preceptor agreement on post-encounter grades ($p > 0.05$ for all). The number of feedback statements in each encounter and whether those statements were specific or corrective were also not related to student-preceptor agreement on post-encounter grades.($p > 0.05$ for all).
CONCLUSION: Students and teachers have poor agreement on student performance when the RIME system of student evaluation is applied in a formative manner to individual ambulatory encounters. Student-preceptor agreement does not appear related to learning climate or the amount and type of feedback provided.

**FACULTY DEVELOPMENT SEMINARS CAN IMPROVE WRITTEN FEEDBACK IN THE AMBULATORY SETTING.** S.M. Salerno[1], P.G. O'Malley[2], L.M. Pangaro[3], J.L. Jackson[3]; [1]Tripler Army Medical Center, Honolulu, HI; [2]Walter Reed Army Medical Center, Wahington, DC; [3]Uniformed Services University, Bethesda, MD *(Tracking ID #50794)*

BACKGROUND: While written feedback on medical students is common, little research has been performed on the content of this feedback and whether it can be improved. We wished to characterize the nature of written feedback in the outpatient setting and assess the impact of an ambulatory faculty development workshop on improving written feedback quality.
METHODS: We conducted a pre-post study of the effect of faculty development based on the "One-Minute Preceptor" model. Training consisted of three 90-minute seminars which included lectures, trigger tapes and role plays and which also gave instruction on providing balanced written feedback. Written feedback cards, routinely collected as part of our internal medicine third year ambulatory clerkship, were collected before and after participation in our faculty development program. Comments on the cards were transcribed and blindly coded using the Written Ambulatory Feedback Assessment System, a qualitative coding system we specifically developed to characterize written feedback.
RESULTS: Nine board-certified internist faculty preceptors and 44 third-year medical students participated. Ninety-seven encounters with 275 written feedback statements were analyzed; 48 before and 49 after the seminars. After the workshops, the average number of feedback statements per card increased slightly, with $2.6 \pm 1.3$ statements before and $3.1 \pm 2.0$ statements after the seminars ($p = 0.2$). Most (58%) of the feedback was formative, with the remainder summative. The most common (30%) type of feedback was formative feedback dealing with student knowledge. After the seminars the amount of specific feedback increased from 21% to 32% ($p = 0.02$) and the proportion of feedback dealing with student skills increased from 15% to 29% ($p = 0.01$). Preceptors were nearly twice as likely (OR 1.93; 95% CI 1.05–3.59) to give corrective written feedback after the seminars. Written feedback on student attitudes, such as professionalism and the student-patient relationship constituted only 9% of total feedback comments both before and after the seminars.
CONCLUSION: Most written feedback comments in ambulatory encounters are formative and positive, but not specific. Brief, interactive, faculty development workshops based on the "One-Minute Preceptor" model and including specific examples of written feedback made preceptors more willing to provide specific feedback, corrective feedback, and comment on a greater variety of student performance characteristics.

**THE EFFECT OF CLINICAL QUESTION FORMULATION AND ANSWERING ON RESIDENT KNOWLEDGE AND PATIENT CARE.** L.M. Schilling[1], E.M. Cyran[1], G.A. Albertson[1], C.T. Lin[1], J. Steiner[1], R.J. Anderson[1]; [1]University of Colorado Health Sciences Center, Denver, CO *(Tracking ID #51096)*

BACKGROUND: Physicians caring for patients have frequent information needs that often go unanswered. Previous studies indicate that resident physicians have approximately 2 questions for every 3 patients seen in the outpatient setting and that 70% are not pursued. Our aim is to determine how the formulation and completion of a patient-specific clinical query affects resident patient-care decisions.
METHODS: Setting: Academic internal medicine resident outpatient clinic. Participants: 43 internal medicine residents. Methods: For each half-day clinic session a resident was asked to formulate and answer a patient-specific clinical question based on a patient seen that session. Residents were encouraged to find the answer during the clinic session, i.e., "real-time". Attending preceptors were available to assist with question formulation, and advise regarding literature searching and use of information resources. Residents completed a 5-minute survey after completion of the assignment.
RESULTS: The completion rate of the exercise was 48 out of 69 potential opportunities (70%). The majority of clinical questions fell into the following categories: therapy (38%), prevention (17%), diagnosis (15%), and disease management (13%). 85% of responsdents indicated that they found an answer that directly (50%) or indirectly (35%) addressed their question. A Likert scale from 1 (strongly disagree) to 5 (strongly agree) was used to assess the following; 1) confidence that the "best answer" can be used to aid patient care (3.9), 2) information improved patient care (3.8), 3) improved confidence in care (4.0), 4) improved communication with patient (4.0), 5) improved knowledge (4.3), and 6) will improve care provided to future patients (4.1). 57% of queries were completed in less than 20 minutes, 21% in 21 to 30 minutes, and 22% took more than 30 minutes to complete.
CONCLUSION: Formulating and seeking answers to patient-specific clinical questions has a beneficial effect on resident knowledge, confidence, communication and patient care. Unfortunately, in a busy practice setting this benefit comes with an investment of substantial time.

**CENTRAL LINE TRAINING INCREASES RESIDENT CONFIDENCE AND KNOWLEDGE.** K. Schwartz[1], J. Tan[1], H. Burke[1], J. El-Bayoumi[1]; [1]George Washington University, Washington, DC *(Tracking ID #51989)*

BACKGROUND: Central line placement can cause anxiety among residents and morbidity in patients. Residents benefit from didactic instruction and practice on mannequins.
METHODS: The subjects were 64 medicine residents, given a didactic session and practical instruction on mannequins. At the start and end of the session, the participants completed an 18 question test to assess improvement in comfort and knowledge.
RESULTS: TABLE 1 Confidence. PGIs were significantly more confident post training (pre vs. posttest, P trend = 0.0181), PGIIs weren't significantly more confident after training (pre vs. posttest, P trend = 0.3760, PGIIs were significantly more confident than PGIs in both pre and posttest(pretest PGI vs. PGII P = 0.0067), training significantly increased knowledge of PGI and II (posttest PGI vs. PGII P = 0.0266. Chi-square tests. TABLE 2 Knowledge. Didactic significantly increased knowledge of PGI (pre vs.posttest, P < 0.001,2-tailed) and PGII (pre vs.posttest, P < 0.001, 2-tailed), knowledge of PGIIs prior to intervention was significantly greater than PGIs (pretest PGI vs. PGII, P = 0.049, 2-tailed),and PGIIs knowledge was greater than PGIs post intervention (posttest PGI vs. PGII, P = 0.043), finally, posttest knowledge of PGIs was greater than pretest knowledge of PGII (PGYI post vs. PGII pre, P < 0.0001. Student's t-tests).
CONCLUSION: Training first and second year residents improved knowledge, increased confidence of first year residents. The didactic was more effective than a year of training in increasing knowledge.

**Table 1**

| | Confidence Pretest PGYI | Confidence Posttest PGYI | Confidence Pretest PGYII | Confidence Posttest PGYII |
|---|---|---|---|---|
| Very Comfortable | 0 | 0 | 10% | 9% |
| Comfortable | 10% | 23% | 35% | 55% |
| Hesitant | 63% | 73% | 55% | 36% |
| Petrified | 27% | 4% | 0 | 0 |

**Table 2**

| | Knowledge Pretest Mean (SEM) | Knowledge Posttest Mean (SEM) |
|---|---|---|
| PGYI (n = 30) | 12.30 (0.333) | 16.04(0.425) |
| PGYII (n = 21) | 13.30 (0.349) | 17.10(0.181) |

**ELECTRONIC JOURNAL CLUB DID NOT CHANGE THE USE OF EVIDENCE BY ACADEMIC GENERALIST PHYSICIANS: A RANDOMIZED TRIAL.** K. Mukohara[1], M.D. Schwartz[2]; [1]Nagoya University Hospital, Nagoya, Japan; [2]New York University, New York, NY *(Tracking ID #51958)*

BACKGROUND: As physicians we are challenged to stay up to date and incorporate current best evidence in our daily practice. The Weekly Browsing Journal Club (WBJC) presents structured, critically appraised summaries of 1 – 3 new articles from five core journals (JAMA, NEJM, Annals, BMJ, and Lancet) by email weekly. We sought to determine the effect of this educational intervention on physicians' reported use of research evidence in practice in an unblinded randomized controlled trial.
METHODS: Academic generalist physicians (SGIM members) were randomly assigned to receive either the WBJC or an electronic control (link to commercial health news site) by email every week for 3 months. Participants completed a web-based questionnaire before and after the intervention. The survey was designed to measure change in current use of evidence in practice, attitudes regarding the use of evidence in practice, ability in critical appraisal and quantitative skill, and reading habits. We compared mean pre-post change scores between the 2 groups with t-tests.
RESULTS: 90% (96/107) completed the trial (mean age = 41, 43% female). The groups were similar at baseline. Most were active teachers, 83% taught students and 91% taught residents. Half had training in Evidence Based Medicine (EBM) and 60% taught EBM. When faced with unanswered clinical questions in practice, 68% reported they find answers to help make clinical decisions, 62% said they incorporate research evidence into their patient care, and 25% said they actually read evidence to help make clinical decisions. On average they reportedly spend 2 hours reading 4 journals/week.
After 3 months, the 53 randomized to the WBJC reported a decrease of 10 minutes/week reading journals vs. an increase of 26 minutes for the 53 controls (p = .02). However, there were no significant differences between groups in changes in the % finding answers (overall mean down 1.3%), % incorporating evidence in practice (up 3.3%), and % reading evidence to make decisions (up 2.2%). Change scores for attitudes regarding the use of evidence in practice and self-perceived ability in critical appraisal were also similar. Nevertheless, 82% of the WBJC group were satisfied with the intervention and 69% felt it was educationally useful. 90% asked to continue receiving the weekly summaries at the end of the study. Over 3 months, 55% of the WBJC group read >80% of the summaries. Of the 25 papers summarized, they felt they would not have learned about 5 (20%) if not for the WBJC.
CONCLUSION: While physicians appreciated and desired these electronic research summaries, the WBJC had little impact on their self-reported use of research evidence in clinical practice. Impact might have been higher in a group less engaged initially in EBM. Although the importance of staying up to date may be clear, the best strategy to translate evidence into practice remains to be determined.

**THE PATIENT'S NEGATIVE PERCEPTION OF RESIDENT PARTICIPATION IN THE PROVISION OF PRIMARY CARE IN THE TEACHING CLINIC.** G.A. Sicard[1], G.C. Lamb[1]; [1]Medical College of Wisconsin, Milwaukee, WI *(Tracking ID #52177)*

BACKGROUND: We have previously reported that overall patient satisfaction with clinic visits was worse when care was provided by a resident-faculty (RF) pair versus faculty (F) alone. We hypothesized that the reason for differences in satisfaction might be due to the different patient populations seen by residents and faculty.
METHODS: A survey was designed to evaluate various elements of patient satisfaction in the outpatient setting. The survey combined investigator developed questions, and selected items from the Medical Outcomes Study (MOS) visit rating form, the MOS general health survey, and the Components of Primary Care index, for a total of 43 items. Univariate analyses were done to compare the socio-demographic factors of patients who saw residents versus faculty, and to identify predictors of overall satisfaction. A multivariate regression model was built to evaluate the effect of a resident-faculty versus faculty alone on overall satisfaction while controlling for socio-demographic variables. Other descriptors of the visit including the physicians personal manner, explanation provided to patient during visit, time spent with physician, and time spent waiting to be seen were also entered into the mode.
RESULTS: Surveys were completed by 186 patients (110 resident-faculty visits, 76 faculty visits). In the current study, significant differences were noted between the patients seen by the resident-faculty (RF) pair versus the faculty (F) alone with regard to race (43% of the resident's patients were of races other than white vs. 25% for faculty, P = 0.009), physician personal manner (RF mean 4.62 vs. 4.82, P = 0.0424), and overall general health (RF mean 2.55 vs. 3.06, P = 0.0022). There were no significant differences noted between patient age, sex, clinic site, explanation provided to patient during visit, time spent with physician, and time spent waiting to be seen. In univariate analysis, socio-demographic variables of the patients were not predictive of overall satisfaction. In multivariate analysis, having a faculty provider (versus resident-faculty pair) and higher scores on the physicians personal manner were the only variables predictive of increased overall satisfaction.
CONCLUSION: The differences in satisfaction between patients seen by a resident-faculty pair versus faculty alone can not be explained by differences in patient characteristics between the two provider types. Our work suggests that the domain of physician's personal manner may contribute to the increased overall satisfaction with faculty providers. If true, residents may benefit from interventions designed to enhance interactions and communication with patients in the ambulatory care setting, such as increased exposure to faculty role modeling.

**A NEW INSTRUMENT FOR MEDICAL RESIDENTS' EVALUATION OF INPATIENT TEACHING ATTENDINGS.** C.A. Smith[1], A.B. Varkey[1], A.T. Evans[1], B.M. Reilly[1]; [1]Cook County Hospital/Rush Medical College, Chicago, IL *(Tracking ID #51969)*

BACKGROUND: The evaluation of teaching attending physicians has changed little over past decades despite dramatic changes in physicians roles, responsibilities and expectations. Existing evaluation instruments are inadequate because they fail to address the current emphasis on professional accountability, clinical efficiency and evidence-based practice. We developed a new instrument that incorporated all important aspects of teaching physicians' activities and then tested its reliability and validity.
METHODS: A 7 member consensus committee created a 31-item questionnaire for completion by internal medicine residents at the end of each inpatient ward rotation during the 2000 – 01 academic year. Questions measured traditional skills such as attending's clinical and teaching abilities, professionalism and feedback efforts. Non-traditional skills measured included rounding skills and the modeling and teaching of evidence-based medicine. Factor analysis and judgement led to the creation of 7 discrete domains of skills. Likert scales (1 – 5) were used to measure responses, domain-specific scores and a final summary score. We tested reliability by measuring the coefficient alpha for the separate domains and the summary score.

Given the lack of a criterion standard, the instrument's summary score was compared with residents' reported desire to work with the same attending again in the future. Regression analysis was performed to identify key predictors of the summary score.
RESULTS: We analyzed 763 evaluations of 100 teaching attendings. As a group, the faculty received significantly higher mean scores for professionalism (4.8), rounding skills (4.6), clinical skills (4.4) and the practice of EBM (4.3) than for their didactic teaching (3.9), bedside teaching (3.8) or feedback (3.7); $P < 0.001$. In addition, the instrument was able to statistically discriminate between individual attendings with mean summary scores ranging from 2.3 to 4.9 ($P < 0.001$) and mean domain-specific scores ranging from 1.1 to 5.0 ($P < 0.001$). The reliability coefficient for the summary score was 0.95 and ranged from 0.84 – 0.97 for the domain specific scores. We found the summary score correlated highly (r = 0.67) with residents' wanting to work with the same attending again. Regression analysis showed the score on a single question regarding the attending's capacity for explicit clinical reasoning was an extremely strong predictor of the summary score (R2 = 0.70).
CONCLUSION: We have created a reliable instrument with strong content and construct validity to measure all the important responsibilities of today's inpatient teaching attendings. Although not previously described in the literature, an attendings' proficiency in explicit clinical reasoning appears to be the single best predictor for a high summary score.

**SELF-ASSESSMENT AS A PREDICTOR OF PROFESSIONAL BEHAVIOR.** D.T. Stern[1], A.Z. Frohna[1], L.D. Gruppen[1]; [1]University of Michigan, Ann Arbor, MI *(Tracking ID #52018)*

BACKGROUND: The ability to self-assess is a fundamental characteristic of professional behavior, yet many studies have shown that students and practicing physicians are inaccurate in self-assessment. As part of a larger study to investigate predictors of professional behavior in medical students, we investigated whether this inaccuracy (in degree and direction) would predict a dimension of professional behavior.
METHODS: All 153 students from one graduating class who had proceeded with less than 1 year of interruption through 4 years of medical school were included. The outcome measure for professional behavior was a composite of three professionalism items on all faculty and resident evaluation forms for all students during the 3rd-year clinical medicine rotation. The self-assessment task was a standardized patient (SP) exercise where students were expected to complete a general history during the first 4 months of medical school. Upon completion of the interview, and prior to any feedback, both the trained SP and the student completed identical evaluation forms. The difference between the SP and self-assessed score on 8 general communication skills items was used as the self-assessment vector.
RESULTS: The raw SP score from the first year of medical school predicted the professional behavior score in the third year of medical school (r = 0.158, p = 0.02), but the raw self-assessed score did not (r = 0.102, p = n.s.). The self-assessment vector (SP score — Self-assessed score) was a strong predictor of the professional behavior score (r = 0.233, p = 0.004), indicating that those who under-estimate their performance were perceived as behaving more professionally. In multiple regression analysis including both the raw SP score and the self-assessment vector, the self-assessment vector was the sole predictor of the outcome measure (standardized beta coefficient 0.288 vs 0.007).
CONCLUSION: The self-assessment vector (degree of over- or under-estimation of performance) is a strong predictor that reflects one dimension of professional behavior, as identified even 2 years later. Those students who under-estimate their performance early in medical school are more likely to be identified by faculty and residents as behaving in a professional manner during the clinical years. Further investigation of this phenomenon, and search for additional predictors of professional behavior is warranted.

**HOW DO RESIDENTS COMMUNICATE ON THE PHONE? A PERFORMANCE BASED ASSESSMENT.** D.L. Stevens[1], S. Zabar[1], K. Hanley[1], M.D. Schwartz[1], E.K. Kachur[2]; [1]New York University, New York, NY; [2]Medical Education Development, New York, NY *(Tracking ID #51567)*

BACKGROUND: Nearly a third of internal medicine (IM) patient encounters occur over the telephone. Yet physicians often have a low level of confidence in practicing telephone medicine and receive little training in this area. NYU IM residents participate in a telephone medicine curriculum, but there is little opportunity to evaluate their actual telephone encounters. Thus we developed a clinically relevant assessment tool, measured its validity and compared residents' competencies in over-the-telephone vs. in-person management.
METHODS: We developed two standardized patient (SP) telephone interview stations as part of a comprehensive 10-station SP exam for 34 IM residents. Stations were selected to represent common challenges encountered over the telephone. In one station, residents had to counsel patient about an elevated cholesterol test, addressing the significance of the results, dietary modification and a plan for follow-up. In the second station the resident spoke via phone with the daughter of a patient with memory loss. The tasks were to address the daughter's strong emotions, educate her on the findings, and agree on a follow-up plan. SP's and faculty observers were located in other rooms and used a speakerphone to communicate and listen in. Residents were rated on multiple items in 5 domains: data gathering, rapport building, patient education, knowledge and synthesis. All items used a 4-point scale (1 = not done 4 = done excellently). SP's and faculty were instructed to give behaviorally specific ratings and feedback based on a station-specific checklist. SP and faculty feedback was provided over the phone after the clinical encounter. Validity was determined by measuring correlation coefficients between faculty ratings and both SP ratings and resident self-ratings. Residents' scores on telephone cases were compared to in-person in all domains.
RESULTS: Faculty ratings correlated positively with SP ratings (r = 0.46; p = 0.007) and with resident self-ratings (r = 0.48; p = 0.005). Residents found the stations realistic, describing them as epitomizing the challenges of telephone medicine, such as assessing callers' emotional state without non-verbal cues. Comparison of in-person vs. telephone performance showed no statistically significant differences in residents' data gathering, rapport building and patient education.
CONCLUSION: Residents performed equivalently in telephone and in-person stations. Further study is necessary to demonstrate whether this equivalent performance can be attributed to our telephone medicine curriculum. Performance-based assessment using SP's speaking over the telephone validly assesses a broad range of telephone communication skills. Residency programs can now monitor residents' progress and the efficacy of a telephone medicine curriculum.

**EVALUATION OF A NEW PRE-CLINIC CONFERENCE.** G.H. Tabas[1], D.A. Lescisin[1], S. Hassan[1]; [1]University of Pittsburgh, Pittsburgh, PA *(Tracking ID #50605)*

BACKGROUND: Recent changes in medical education requirements reflect that most primary care physicians spend the majority of their clinical time in ambulatory settings. The Residency Review Committee states that the core teaching conference schedule for internal medicine residents must include "issues arising in ambulatory settings." Many institutions use a 30 – 45 minute conference held in the clinic to meet these requirements. Beginning in July, 2001, we changed the format of our pre-clinic conference in order to increase active learning among residents by requiring resident-directed literature searching prior to resident topic presentation. The purpose of this study is to evaluate the overall quality of pre-clinic conference, the quality of the literature chosen by residents, and the factors associated with greater resident participation.
METHODS: We administered a 15-item survey to all PGY2 and PGY3 internal medicine and medicine-pediatrics residents who attend pre-clinic conference. The survey measured residents' career plans, level of participation in pre-clinic conference and evaluation of multiple aspects of the new conference format. Responses were based on a 5-point Likert scale, with 5 being the highest rating.
RESULTS: Seventy-six percent of eligible residents completed the survey. Three out of 22 residents (14%) indicated primary care as their career choice. Residents attended a mean of 87% of conferences and presented a mean of 3.2 topics. The most common reason for lack of attendance was difficulty in getting to the conference because of an off-campus rotation. Primary care career choice was significantly associated with more topics presented (6.3 vs 2.8, $p \equiv 0.015$) and higher percent attendance (96.7% vs 87.9%, $p \equiv 0.016$). Residents who preferred the new format felt that they acquired a greater amount of knowlege in this setting ($p < 0.001$). PGY year was not associated with differences in participation or ratings of knowledge acquired. When rating aspects of the new format, 38% of the residents felt that their enthusiasm for presenting topics was greater and none felt that it was less. Fifty two percent felt that residents' presenting the topics was preferable to attendings presenting to them, but 10% preferred that attendings present topics. The overall quality of the conference was rated above average or greater by 57% and below average by 10%. Residents and attendings chose literature of similar quality as determined by percentage of references that were peer-reviewed (50% vs 63%, respectively, $p \equiv 0.3$) When choosing sources other than journal articles, residents used UpToDate® 89% of the time and attendings chose only textbooks ($p < 0.005$).
CONCLUSION: A pre-clinic conference in which residents research and present the topics is feasible and is associated with greater resident satisfaction. Residents and attendings chose literature of similar quality. Overall participation was good but primary care career choice was associated with greater participation.

**ARE FACULTY AND PATIENT EVALUATIONS OF INTERNAL MEDICINE RESIDENTS RELATED?** G.M. Talente[1], D.R. Barnett[2], P.F. Bass[3], S.A. Haist[4], J.F. Wilson[4]; [1]East Carolina University, Greenville, NC; [2]VA Medical Center, Topeka, KS; [3]University of Louisville, Louisville, KY; [4]University of Kentucky, Lexington, KY *(Tracking ID #51872)*

BACKGROUND: Standardized faculty evaluations may fail to distinguish separate skill domains. Despite separating clinical skill into its components, the relationships between domains on standardized evaluation forms suggest that faculty make a single unified assessment. Faculty ratings may represent factual knowledge alone, or the interpersonal relationship between the faculty member and the resident. Faculty may not be successfully evaluating qualities and behaviors that are important to patients. Our purpose is to examine the relationship between faculty ratings of resident clinical skills and patient satisfaction with the resident.
METHODS: Faculty utilized the American Board of Internal Medicine standardized rating form to evaluate residents in eight skill domains on a 9-point scale. We collected all faculty evaluations for each resident over a twelve-month period. We measured patient satisfaction with an 8-item survey using a 10-point Likert scale, distributed at the end of continuity clinic visits. Surveying was done over a two-month period in two consecutive years. Residents with fewer than five patient satisfaction ratings were excluded.
RESULTS: Faculty and patient ratings for 58 internal medicine and medicine/pediatrics residents were collected. The mean overall faculty rating for all residents is 7.7 (SD 0.48). The mean patient satisfaction rating for all residents is 9.5 (SD 0.49). The mean overall faculty rating for each resident correlates with the resident's mean patient satisfaction rating (r = .47, p = .0001). Patient satisfaction correlates with the individual domains assessed on the ABIM evaluation form. The relationships are: clinical judgment (r = .5, p = .0001), medical knowledge (r = .45, p = .002), history taking (r = .53, p = .0001), physical exam (r = .51, p = .0001), humanistic qualities (r = .37, p = .004), professionalism (r = .39, p = .003), medical care (r = .52, p = .0001), and procedural skill (r = .23, p = .08). Clinic faculty's overall ratings of the residents' performance in their continuity clinic are also positively related to patient satisfaction (r = .28, p = .04).
CONCLUSION: Faculty assessments of resident clinical skill were positively associated with patient satisfaction in a continuity clinic. The association suggests that the skills, attributes and behaviors that positively influence faculty also increase patient satisfaction. The extent to which different domains of clinical or interpersonal skill influence faculty and patient evaluations remains to be determined.

**IMPROVING HOUSESTAFF CENTRAL LINE PLACEMENT SKILL.** J.C. Tan[1], K.A. Schwartz[1], H. Burke[1], J. El-Bayoumi[1]; [1]George Washington University, Washington, DC *(Tracking ID #51975)*

BACKGROUND: Central line placement is an important procedural skill that must be learned. Resident skills may improve if provided with didactic instruction, demonstration of methods, and practice on mannequins.

METHODS: There were 71 medical students and internal medicine residents, of whom 54 were evaluated. The subjects were given a didactic session on central line placement, demonstration on proper technique, and allowed to practice on mannequins. Subjects were assessed prior to and after practice in terms of the amount of time and the number of placement attempts until successful placement occurred.
RESULTS: The number of attempts prior to success was not significantly different after training compared to before training for any of the groups. The time to success was significantly different after training compared to before training for all of the groups, with borderline results for the PGY IIs (AI, P = 0.0337; PGY I, P < 0. 001; PGY II, P = 0.0625, PGY III, P = 0.0456). Student's t-tests. There was no significant difference between the groups in terms of the number of attempts before training or after training and there was no significant difference between groups in terms of the time to success before training or after training. ANOVA.
CONCLUSION: Training housestaff in central line placement improves placement skills. Time to success was a more sensitive measure of central line procedure skill than number of attempts. We expected to observe a significant "year" effect, with more senior residents being significantly more skillful than their junior peers, however the trend in the direction of this expectation was not significant.

**Table 1**

| | Cases | Mean# Attempts- Pre (SEM) | Mean# attempts- Post (SEM) | Mean Time in minutes- Pre (SEM) | Mean Time in minutes- Post (SEM) |
|---|---|---|---|---|---|
| Acting Intern | 5 | 1.8 (0.20) | 1.4 (0.24) | 3.5 (0.98) | 2.0 (0.56) |
| PGYI | 29 | 2.9 (0.42) | 2.1 (0.49) | 4.2 (0.58) | 2.1 (0.35) |
| PGYII | 13 | 2.0 (0.30) | 1.5 (0.18) | 2.2 (0.47) | 1.5 (0.42) |
| PGYIII | 7 | 1.6 (0.20) | 1.0 (0.0) | 2.0 (0.50) | 0.74 (0.23) |

**CONDUCTING CLINICAL WORK ROUNDS: REALITY VS THE IDEAL.** B. Taqui[1], R. Granieri[1], B. Hanusa[1], D.M. Elnicki[1]; [1]University of Pittsburgh, Pittsburgh, PA *(Tracking ID #51353)*

BACKGROUND: Clinical work rounds represent an important opportunity for residents to supervise and teach interns and students while providing patient care. Little is known about how work rounds are actually performed. Using a newly developed instrument, we aim to identify areas of discrepancy between ideal and actual conduct of work rounds.
METHODS: Based on past literature, we developed a 34-item survey and distributed it to 277 faculty and residents at the University of Pittsburgh. Psychometric analysis indicated that items could be divided into 4 domains of work round goals: data collection/patient care, leadership/organization, teaching/learning, and rounding patterns. Respondents were asked to rate the items on a 5 point scale (1 = none of the time, 5 = all of the time), based on how frequently each item should ideally occur and actually does occur. Responses were analyzed for differences between ideal and actual for each domain and each item. Subgroup analysis was done for status (attending vs resident).
RESULTS: Our response rate was 55%: 48% for faculty (52), 60% for residents (101). There were statistically significant differences between ideal and actual conduct of work rounds for all 4 domains (p < .001). Attendings perceived a greater discrepancy between ideal and actual, compared to residents (p < .001 for 3 of 4 domains; data collection/patient care p < .05). Only 2 out of 34 items showed equivalence between ideal and actual. These items concerned respondents' belief that entire team does not need to round on every patient despite time constraints, particularly if the patient was admitted for social reasons. Only 1 item, "card flipping", was perceived to occur more often in actual practice than ideally desired (p < .001). The item that demonstrated greatest discrepancy between ideal and actual concerned residents setting rounding expectations at the beginning of the month.
CONCLUSION: Faculty and residents believe that actual conduct of work rounds at a major academic medical center does not always meet their ideal standards. Faculty perceive a greater discrepancy compared to residents. Our next step is to analyze the importance of these discrepancies and to develop strategies to reduce them. Also, further study to determine the generalizability of these results is indicated. Our ultimate goal is to use the work rounds experience to enhance residents' knowledge, clinical skills and leadership/teaching abilities.

**COMPONENTS OF "IDEAL" WORK ROUNDS: WHAT DO FACULTY AND HOUSESTAFF THINK?** B. Taqui[1], B. Hanusa[1], R. Granieri[1], D.M. Elnicki[1]; [1]University of Pittsburgh, Pittsburgh, PA *(Tracking ID #51364)*

BACKGROUND: Work rounds offer trainees the opportunity to improve skills in leadership and teaching while simultaneously providing patient care. Time constraints often dictate choices among these aspects, but there is no consensus on which areas are most crucial. Using a newly developed survey instrument, we aim to identify faculty and resident perceptions about the most critical work rounds' goals and barriers to meeting these goals.
METHODS: Based on past literature, we developed a survey instrument and distributed it to 277 faculty and residents at the University of Pittsburgh. Psychometric analysis indicated that the goal related items could be divided into 4 domains: data collection/patient care, leadership/organization, teaching/learning, and rounding patterns. Respondents were asked to rate these items on a 5 point Likert scale (should ideally occur 1 = none of the time, 5 = all of the time). A similar scale was used for barrier related items (occurs 1 = none, 5 = all of the time). Analysis determined goals that most respondents felt should occur most frequently during ideal work rounds. Analysis also identified barriers that most respondents felt interfered most frequently with ideal work rounds. Subgroup analysis was based on status (attending vs resident).
RESULTS: The response rate was 55%: 48% for faculty (52), 60% for residents (101). The goals that most respondents felt should occur most frequently during ideal work rounds were data collection/patient care and leadership/organization (p < .001). The items within data collection/patient care that were most frequently desired were stating previous day's therapeutic interventions and reviewing the overnight course (p < .001). The leadership/organization item most frequently desired was ensuring member presence and participation (p < .001). The teaching/learning items most frequently desired were requiring interns to generate management plans and role modeling bedside behavior (p < .001). The rounding pattern item most frequently desired was ensuring team rounding on patients with difficult personalities (p < .001]. The barrier that most respondents felt occurred most frequently was interruptions during rounds (p < .001). There was no significant difference in rank order of goals and barriers between attendings and residents. 53% of respondents felt attendings made work rounds better; 92% felt that pre-rounding should not be eliminated.
CONCLUSION: Faculty and residents agree that data collection/patient care and leadership/organization are the most critical goals of work rounds. They also identify important components within each goal category and barriers to goal achievement. Our next step is devise a strategy to ensure that the crucial components occur on a consistent basis and that barriers are minimized. Our ultimate goal is to use the work rounds' experience to enhance residents' skills in efficiently balancing service and scholarship.

**IMPACT ON MEDICINE RESIDENTS OF A TEACHING HOSPITAL CLOSURE.** J.S. Teitelbaum[1], A.D. Auerbach[2], M.C. Reid[1], J.S. Hughes[1]; [1]Yale University, New Haven, CT; [2]University of California, San Francisco, San Francisco, CA *(Tracking ID #50150)*

BACKGROUND: In November 1999, inpatient services at Mount Zion Medical Center (MZ), a community teaching hospital affiliated with the University of California, San Francisco (UCSF), were closed due to financial difficulties. The MZ primary care residency program (PCRP) was merged with the PCRP at Moffitt-Long Hospital, the university-based tertiary-care center at UCSF and home to its categorical medicine residency program. The MZ ward teams were transferred intact to the existing ward system at Moffitt-Long. Our aim was to determine the impact of these institutional changes on UCSF medicine residents in both the categorical and primary care programs.
METHODS: We performed a cross-sectional survey of all internal medicine residents whose internship year (PGY1) began in 1997, 1998, or 1999 and were in training during the MZ closure. Subjects were asked to state (using 5-point Likert scales) whether they felt specific aspects of their education, work environment, quality of life, and patient care were better, the same, or worse since the closure. Subjects also answered global questions assessing whether the overall impact of the closure was beneficial, neutral, or harmful.
RESULTS: We surveyed 154 residents, of whom 108 (70%) responded. Responders had a mean age of 31.3 years (SD = 3.1); were 46% female; 72% Caucasian; and did not differ from non-responders in terms of age, gender, ethnicity, or program affiliation. Fifty-nine percent of the total sample felt the MZ closure was harmful to their program. MZ residents were more likely to endorse this view relative to categorical residents (80% v. 59%; p < 0.02), as were PGY1s (interns in 1999) relative to PGY2s and PGY3s (73% v. 62%, 46%; p < 0.04). MZ residents were also more likely than categoricals to rate the execution of the transition as harmful (38% v. 6%; p = 0.0001), and to rate program focus (57% v. 22%; p = 0.03) and morale (81% v. 52%; p = 0.05) as worse since the closure. Conversely, categoricals tended to rate confidence in peers (39% v. 5%; p = 0.001) and educational value of inpatients (48% v. 25%; p = 0.04) as worse. Over 60% of responders felt that relationships with peers, support from and teaching by attendings, and quality of work life, personal life, and patient care were the same as before the closure.
CONCLUSION: Most UCSF medicine residents felt that the closure of an inpatient teaching site had a negative impact on their training. This view correlated most strongly with initial MZ PCRP affiliation. Striking differences were observed between categorical and MZ residents' perceptions of specific aspects of their training: categoricals focused on areas affected by the addition of new residents and their patients, while MZ residents focused on areas lost due to the closure. However, many other aspects of training were unaffected. We conclude that the perception of harm may reflect a temporary reaction to the change and the way it was executed, rather than long-term harm to the quality of the training programs.

**WHY STAY? CAREER PATHS AND PERCEIVED ADVANTAGES OF FACULTY APPOINTMENT.** P.A. Thomas[1], D.R. Martin[1], M.F. Canto[1], W.S. Post[1], M.B. Streiff[1], M. Diener-West[1]; [1]Johns Hopkins University, Baltimore, MD *(Tracking ID #51947)*

BACKGROUND: Clinician educators serve critical roles in maintaining the education and patient care missions of medical schools, but are vulnerable to slower university promotion, especially in research-intensive academic medical centers. Improving retention of these faculty requires better understanding of the intrinsic motivations and perceived rewards for these faculty.
METHODS: Survey of fulltime M.D. faculty in the Department of Medicine in one institution. Faculty were asked to identify with one of four career paths. More than 50% extramural funding identified a research career path. Demographic information, promotion history, hours worked, job satisfaction and perceived advantages and disadvantages of faculty appointment were compared by career path. Open-ended comments were grouped as issues of autonomy, personal growth, workplace conditions or supervision/leadership.
RESULTS: 180/259 (69%) returned surveys. The breakdown by career path was: 46 basic researchers, 69 clinical researchers, 38 academic clinicians and 25 teacher clinicians, 2 no selection. Age, gender, rank, and global work satisfaction did not differ by career path. In the items querying perceived advantages of faculty appointment, clinical faculty rated opportunities to teach medical students and having an interesting spectrum of patients more importantly than research faculty (chi-square p = 0.002). Research faculty, however, rated time flexibility, resources to do research, exposure to national audiences, and collaborative experiences more highly than clinical faculty (p = 0.001). Clinical faculty also valued intellectual stimulation and the opportunity to create a clinical niche for oneself, but no more than research faculty. Faculty as a whole did not rate prestige, job security, or call schedules as important advantages of faculty appointment. Clinical faculty noted autonomy and personal growth as advantages of appointment, but rarely cited workplace conditions or leadership issues as advantages.

CONCLUSION: Clinical faculty differ from research faculty in their motivations for maintaining faculty appointment, and seem to undervalue those aspects of faculty life that facilitate traditional scholarship. Understanding these perceived advantages may facilitate development of institutional reward systems and career development needs for these career paths.

**ON-LINE JOURNALS AND PRIMARY CARE PHYSICIANS: INTEREST AND BARRIERS.**
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BACKGROUND: Electronic medical journals now offer a variety of features that are intended to enhance the usefulness of journal content. Primary care physicians (PCPs), have become enthusiastic users of medical journal web sites. Our objective was to compare general internists' (GIMs) and family physicians' (FPs) interests in specific features of electronic publications and to identify barriers to their use of electronic journals.
METHODS: We surveyed by mail 350 physicians, randomly selecting 175 from the American College of Physicians-American Society of Internal Medicine (ACP-ASIM), and 175 from the American Academy of Family Physicians (AAFP), the two largest societies of PCPs in the U.S.
RESULTS: The overall response rate was 57%. GIMs and FPs had similar computer proficiency (good to excellent, GIMs 45%, FPs 55%) and use of on-line journals (sometimes/often, GIMs 18%, FPs 30%). For different types of journal articles, both GIMs and FPs reported high interest in having links to an electronic medical reference (55% for original articles, 62% for reviews, 54% for editorials), health related web sites (56% for original articles and reviews) and articles' list of references (54% for original articles, 56 % for reviews, 54 % for editorials) They had low interest in having links to initiate dialog with other readers (21% for original articles, 20 % for reviews and editorials) or to communicate comments to the author or editor (12% for original, review, and editorial articles). GIMs were more likely than FPs to have high interest in links to an electronic medical reference (GIMs 67% vs. FPs 48% for original articles, GIMs 75% vs. FPs 56% for reviews $p < .05$), to health related web sites (GIMs 68% vs. FPs 48% for original articles, GIMs 70% vs. FPs 50% for reviews $p < .05$), and to forward an article to a colleague (GIMs 42% vs. FPs 32% for editorials, $p < .05$). Whereas Internet access was not a barrier for the majority of respondents, the inability to read the journal anywhere and preference for print media were reported barriers to the use of electronic journals.
CONCLUSION: Internists and family physicians have considerable interest in special features of electronic publication especially those features that may support their clinical efforts.

**PREDICTORS OF INTEREST IN SPECIAL FEATURES OF ELECTRONIC PUBLICATIONS AMONG PRIMARY CARE PHYSICIANS.**
D.M. Torre[1], S.M. Wright[1], R.F. Wilson[1], M. Diener-West[1], E.B. Bass[1]; [1]Johns Hopkins University, Baltimore, MD *(Tracking ID #51229)*

BACKGROUND: Primary care physicians (PCPs) have reported considerable interest in special features of electronic publications, but it is not known whether that interest comes from subsets of PCPs that have specific needs. Our objective was to identify factors associated with PCP interest in special features of electronic publications.
METHODS: We surveyed by mail 500 physicians, randomly selecting 175 from each of 4 medical societies: the Society of General Internal Medicine (SGIM), Society of Teachers of Family Medicine (STFM), American College of Physicians-American Society of Internal Medicine (ACP-ASIM), and American Academy of Family Physicians (AAFP). We used bivariate (chi square test) and multivariable analysis (step-wise multiple logistic regression).
RESULTS: The overall response rate was 64%. The majority of respondents were involved in patient care (66%), had a faculty appointment (66%), and good to excellent computer proficiency (63%). Univariate predictors of interest in links to an article's list of references and electronic medical references were internal medicine specialty, membership in SGIM or STFM, faculty appointment, use of online journals, computer proficiency (good to excellent) and main work activity (patient care and teaching) [p-value < .05]. Univariate predictors of increased interest in links to health-related web sites were STFM membership, home Internet access, online journal use, and patient care as main activity [(p-value < .05]. Multivariable analyses showed that the strongest predictors of interest in links to an article's list of references were: online journal use (odds ration [OR] 3.6, 95% confidence interval [CI] 2.0 – 6.4), SGIM membership (OR 2.80, CI 1.14 – 6.80) and high computer proficiency (OR 2.4, CI 1.4 – 4.3). The strongest independent predictors of interest in links to an electronic medical reference were: home Internet access (OR 3.13, CI 1.37 – 7.4), use of online journals (OR 3.6, CI 2.0 – 6.3), high computer proficiency (OR 2.1, CI 1.2 – 3.7), teaching activity (OR 1.47, CI 0.76 – 2.9) and patient care focus (OR 2.0, CI 1.2 – 3.4). Independent predictors of interest in links to health-related web sites were: home Internet access, online journal use (OR 2.2, CI 1.3 – 3.6), and patient care focus (OR 2.0, CI .1.2 – 3.5).
CONCLUSION: After adjusting for on-line journal use, level of computer proficiency, and Internet access, we found that specialty (internal medicine vs. family medicine), SGIM membership, and heavy involvement in teaching and patient care were associated with increased interest in special features of electronic publications. Journal editors should take those factors into consideration when developing new electronic features.

**CAN A ONE-DAY IMMERSION-TYPE EXPERIENCE IN PALLIATIVE CARE IMPROVE THE SELF-PERCEIVED ABILITIES AND ATTITUDES OF THIRD YEAR MEDICAL STUDENTS?**
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BACKGROUND: As American medical schools begin to implement palliative care training, curricular time constraints demand that this be done efficiently. The goal of this study was to evaluate whether a brief intensive educational experience could improve third year students' self perceived skill and comfort, and attitudes, with regard to various aspects of palliative care.
METHODS: In 1998, New York Medical College initiated a one-day immersion-type educational intervention at an internationally recognized institution (Calvary Hospital), specializing in palliative care for patients with incurable cancer. The day consisted of didactics, group discussion, case-based teaching and patient rounds. A previously validated self-administered survey was administered to third year students who were to receive the intervention, before and just after the 3rd year (1998 – 1999), and a historical control group of beginning 4th year students (1998 – 1999). The survey consisted of 56 Likert-type items that measured students' perceptions of how (and if) teaching occurred, self-perceived skill and comfort, and multi-item assessments of attitudes, regarding the following domains: communication, family/spiritual concerns, pain management, and death and dying.
RESULTS: The response rates for completion of the survey for the pre and post intervention, and historical control groups were 94% (n = 193), 92.6% (n = 190), and 95% (n = 160), respectively. There were no statistical differences in the demographic profiles of the intervention and historical control groups. Of the few (11/56) items that improved significantly ($p < .05$ by t-test) from the pre to post period, only the following item responses were also significantly better than the historical controls: communication with dying patients is discussed by faculty ($p < .001$), opportunities existed to discuss concerns of dying patients and their families ($p < .001$), information was provided on pain relief for terminally ill patients ($p < .001$), felt prepared (by medical school) to cope with patient deaths ($p < .001$), and information was provided on treatment of dying patients ($p = .001$). There was no pattern of significant improvement within any of the types of measures or domains.
CONCLUSION: An intensive one-day experience, even at a "state of the art" cancer hospital, does not seem sufficient to improve students' attitudes or self-perceived ability in end-of-life care. Testing a longitudinal approach to education that comprehensively addresses different aspects of palliative care seems warranted.

**TEACHING EVIDENCE-BASED MEDICINE TO PRIMARY CARE INTERNAL MEDICINE RESIDENTS: SUBJECTIVE AND OBJECTIVE OUTCOMES.**
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BACKGROUND: To practice effectively and maintain their skills, physicians must be able to find, understand, evaluate, and apply the latest medical evidence to their clinical care. Thus, an important goal of residency training is to improve residents' skills in practicing Evidence-Based Medicine (EBM). Systematic reviews have found that the literature assessing the outcomes of specific EBM curricular models is sparse. We report outcomes of an EBM curriculum for Primary Care Internal Medicine residents.
METHODS: PGY2 residents in a 3-month inpatient/outpatient firm rotation attend 10 – 12 weekly 1-hour sessions conducted in a small group format. The first two sessions use an interactive/didactic format to review basic concepts in biostatistics, informatics, clinical epidemiology, and EBM. For subsequent sessions, a clinical question based on a specific patient care issue is chosen by consensus, and a resident searches for, selects, and distributes a research article relevant to the question. The resident discusses their search strategy and presents a summary and initial evaluation of the article, which is followed by participatory discussion facilitated by the instructor. The instructor guides discussion to apply evaluative criteria to the article, discuss practice applications, and provide focused instruction to cover a set of key concepts. At the end of the course, the residents do a more intensive final presentation in a similar format. Changes in EBM knowledge and skills were evaluated with a 38-item test given before and after the course, with blinding of participants and the instructor to the results. Participants also self-evaluated changes in their knowledge, skills, and practice on an anonymous evaluation form.
RESULTS: From September 1998 to December 2001, 46 residents completed the course and both tests. Of these, 40 (87%) improved their test scores. The mean score improved from 65.3% to 73.7% correct responses ($p < .001$, paired t-test), a 12.9% relative increase, or an average of 3.2 more correct items. Of 50 who completed the evaluation form, 80% said participation in the course had improved their evaluative skills (>3 on a 5-point agreement scale). 74% felt more confident in evaluating medical literature, and 82% said the course had changed the way they read and evaluate articles. Fewer felt the course had significantly improved their clinical knowledge (52%) or changed the way they care for patients (40%). Only 34% said it had increased their chances of conducting research in the future.
CONCLUSION: Participants modestly improved their performance on a test of EBM knowledge and skills. Most felt their evaluative skills and confidence had improved, and that they had changed the way they evaluate medical literature. Fewer felt the course had changed their clinical knowledge, practice style, or interest in conducting research. Further innovation will be needed to develop curricular models with a greater impact on EBM knowledge and skills, and their application to clinical care.

**WHAT DO RESIDENTS NEED TO KNOW ABOUT "FREE LUNCHES"?**
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BACKGROUND: Debate over appropriate physician-pharmaceutical industry interaction (PPII) is intensifying. Little is known about the knowledge or skills that internal medicine residents need to interact appropriately with the phamaceutical industry. We conducted a needs assessment of current knowledge and preferences for potential components of a new educational initiative for our residents.
METHODS: A 2-page questionnaire using a 5-point ordinal scale was mailed to all internal medicine residents and faculty. We collected questionnaires in a number-coded, anonymous fashion over a 2-month period during the fall of 2001. Non-responders received 2 follow-up mailings. Analysis included use of Wilcoxon two-sample test.
RESULTS: Response rates were 97%(85/88) for residents and 79%(86/109) for faculty. Very few responders were knowledgeable about formal position statements or literature on the impact of marketing on prescribing patterns. Forty-six percent of faculty and only 28% of residents reported being knowledgeable about marketing costs. A minority of faculty (23%) and residents (19%) were knowledgeable about how pharmaceutical representatives (PR) are trained to interact with physicians. The majority of all responders felt that residents should learn critical interpretation skills of promotional materials, when potential conflict of interest

may arise, and how patients perceive PPII. Concerning other curricular components, more faculty than residents valued including position statements (67% vs 39%, p < 0.001) and literature exploring the impact of marketing on prescribing patterns (72% vs 48%, p < 0.001). No significant differences existed in the responses from generalist and subspecialty facutly. A few trends did emerge where generalists were more likely to value inclusion of: critical interpretation skills of promotional materials (85% vs 70%, p = 0.05); literature on the impact of marketing on prescribing patterns (86% vs 67%, p = 0.06); and patients' perception of PPII (75% vs 63%, p = 0.09). Of all responders, only 50% or less favored the following educational formats: small group discussions, lecture series, critical reading seminars, or panel discussions. Even fewer desired web based modules, flyers in mailboxes, or spending a day with a PR.
CONCLUSION: Internal medicine residents and faculty reported low levels of knowledge about PPII. Faculty were much more likely to value that residents learn about position statements from various organizations and literature regarding impact of marketing on prescribing patterns. We found some consensus regarding a few of the educational components, but uncertainty appears to exist regarding optimum educational formats to best address this complex, emotionally charged topic.

**THE USE OF AMBULATORY BLOCK ROTATIONS IN INTERNAL MEDICINE RESIDENCY PROGRAMS: RESULTS OF A NATIONAL SURVEY.** D.B. Wayne[1], A. Halevy[2], D.J. Hyman[2]; [1]Northwestern University Medical School, Chicago, IL; [2]Baylor College of Medicine, Houston, TX *(Tracking ID #51037)*

BACKGROUND: Internal medicine residency programs are expected to offer a broad education in outpatient medicine and to provide a minimum of 33% of time in the ambulatory setting. To accomplish this, an ambulatory block rotation (ABR), containing clinical experiences in internal medicine subspecialties and areas such as ENT, dermatology and orthopedics, is commonly used. As there is no national data on the prevalence, composition and evaluation of ABRs, we surveyed program directors to gather this information.
METHODS: After approval of the IRB, a survey was mailed to directors of the 399 accredited residency programs in the US as identified by the Graduate Medical Education Directory of the AMA. An ABR was defined as an outpatient rotation with clinical experiences in more than one setting in a single week. Data was obtained on the length of the rotation, types of clinical activities, presence of conferences and evaluation methods. Program directors were asked to evaluate the value of this rotation and the seriousness of the residents' approach to the ABR as compared to other rotations.
RESULTS: Two hundred and three (51%) surveys have been returned to date. Programs were self-identified as university based: 91(45%), community-based: 45(22%), both: 64(32%) or military: 3(1%). One hundred seventy-three(85%)programs have an ABR. Over the 3-year residency, the mean duration is 14.8 weeks with a range of 4 to 36 weeks. A mean of 52.2% of time is spent in internal medicine subspecialty clinics. Seventy-two (42%) programs with an ABR have a unique conference for the rotation. Program directors rated the importance of the ABR as a mean score of 3.6 on a Likert-type scale of 1(not valuable) to 5(extremely valuable). They rated the residents' approach to the ABR as a mean score of 2.8 on a scale of 1(not serious) to 5(very serious).
CONCLUSION: ABRs are widely used to educate residents in outpatient medicine. Clinical experiences are almost evenly divided between internal medicine subspecialties and non-internal medicine subjects. There is some perception that residents view this rotation less seriously than others. Therefore, ABRs should be further studied to guarantee that their educational impact is being maximized.

**MAINTAINING RELEVANCE: CHANGES IN THE PROCEDURES PERFORMED BY TODAY'S PRACTICING INTERNISTS.** R.S. Wigton[1], L.L. Blank[2], D. Nickol[3], S. Flach[4], B. Leas[2], P. Alguire[5]; [1]University of Nebraska, Omaha, NE; [2]American Board of Internal Medicine, Philadelphia, PA; [3]University of Nebraska Medical Center, Omaha, NE; [4]University of Iowa, Iowa City, IA; [5]American College of Physicians-American Society of Internal Medicine, Philadelphia, PA *(Tracking ID #52335)*

BACKGROUND: Skill in doing procedures is important to patient safety and the quality of the information obtained. Previous studies have shown that general internists do many procedures, but the shift to more ambulatory medicine and managed care may have changed the number and type of procedures done by general internists. A recent survey of program directors suggests that residents may not all get the training they need, particularly in outpatient procedures.
METHODS: In December 2001, we surveyed a group of active, younger internists in practice who were initially certified by the ABIM in 1990 and 1991 and have recently recertified.
RESULTS: Of 2952 surveys sent with correct addresses, 1288 (44%) have thus far been returned for analysis. Of these,1038 are full-time general internists. In comparison with a survey of general internist members of the ACP 15 years previously, this group of younger internists reported doing fewer common hospital based procedures such as thoracentesis (66%, 29%), bone marrow aspiration (37%, 9%), paracentesis (60%, 34%). Similarly a lower proportion do procedures involving laboratory examination such as urinalysis (70%, 28%), wet mount of vaginal secretions (68%, 38%) and gram stain of sputum (50%, 6%). Outpatient procedures, such as joint aspiration (72%, 60%) and skin biopsy (22%, 32%) do not show this decrease. For those who do each procedure, the number done in the past year is similar to the number in the prior survey, except for an increase in the number of skin biopsy procedures. In addition, based on source of income, the proportion of internists doing procedures and the hours spent in patient care were higher in those whose income is based in part on clinical productivity (vs. salaried). 9.8 vs. 8.6 procedures, 48 vs. 35 hours per week in patient care.
CONCLUSION: These younger physicians do fewer procedures than was reported by physicians in a national survey 15 years ago. In comparison with the previous survey, this group does fewer hospital and lab based procedures but a similar number of ambulatory care procedures such as joint injection and skin biopsy. These changes may relate to shifts to more ambulatory care, greater regulation of outpatient laboratories, subspecialization and credentialling criteria, and different physician incentives and workload. To assure relevant experience, it is essential that these changes in practice be reflected in the procedures now learned during internal medicine residency training.

**MEASURING RESIDENTS' CARE MANAGEMENT KNOWLEDGE: HOW ARE WE DOING?** B.C. Williams[1], E. Kachur[2], J.G. Frohna[1], R. Halpern[3], J. Jensen[1], M. Yedidia[4]; [1]University of Michigan, Ann Arbor, MI; [2]Medical Education Development, New York, NY; [3]Tufts Managed Care Institute, Boston, MA; [4]New York University, New York, NY *(Tracking ID #50764)*

BACKGROUND: Care Management (CM) Curricula (historically called Managed Care Curricula) have been implemented in numerous medical schools and residency programs. The purpose of our study was to determine the content and quality of instruments that measure knowledge of CM at U.S. residency programs.
METHODS: Written assessment instruments for CM knowledge were identified by contacting published authors, member organizations of two national projects that developed CM Curricula, and personal contacts. Instruments were included if they assessed residents' knowledge of non-clinical dimensions of health care. The classification system was adopted from Halpern et al. (Acad Med 2001;76:606) and consisted of 10 main and 59 subdomains. Each item was classified by two independent reviewers; two additional reviewers classified a random subset of items. Item quality was rated by consensus in small groups of 6 – 8 clinician educators, education evaluators, medical directors of managed care organizations, and residents who met for a 1 1/2 day workshop on the assessment of CM competencies. Items were rated on: a) importance to practice, b) format, using criteria published by the National Board of Medical Examiners, c) cognitive level (recall vs. application), and d) overall quality. Each item was then rated as high- (usable), medium- (possibly usable) or low- (use not recommended) quality.
RESULTS: Eleven instruments containing 314 items were identified from 9 organizations. Ninety percent of items focused on Healthcare Systems Overview (57%), Medical Management (23%), or Quality Measurement and Improvement (10%). Two-way kappas for item classification ranged from .41 to .70. Of the 179 items in the Healthcare Systems Overview domain, only 17 (9%) were rated as high quality by the two pre-workshop reviewers. (Items not further reviewed in small groups.) Of the remaining 135 items, 21 (15%) were rated as high-, 44 (33%) as medium, and 70 (52%) as low-quality. Of the 21 high-quality items, 14 related to Evidence-Based Medicine (EBM). Common reasons for low quality were poor format and time-sensitive content.
CONCLUSION: Current assessment instruments for residency CM curricula focus on a narrow range of domains, and are of relatively poor quality. The dominant area (Healthcare Systems Overview) includes much content that is likely to change in the short-term (i.e., organizational and financial models of practice) and relates only indirectly to medical decision-making. Underrepresented domains include population-based care, medical management other than EBM, preventive care, teamwork, information management, and practice management. There is a need for more comprehensive and higher quality assessment instruments to measure residents' knowledge of Care Management.

**THE LOSS OF IDEALISM THROUGHOUT INTERNSHIP.** J.F. Wilson[1], C.H. Griffith[1]; [1]University of Kentucky, Lexington, KY *(Tracking ID #51214)*

BACKGROUND: Most studies of attitude change throughout medical education measure global and general attitudes rather than attitudes to specific patient-types and to the profession. The purpose of this project was to understand how attitudes to specific types of patients change throughout the first year of residency training ("internship"). We hypothesized that through the academic year interns would become less idealistic toward the following patient types: 1) the elderly; 2) patients with chronic pain; 3) patients on disability; 4) smokers; 5) alcoholics and 6) the poor, as well as becoming less idealistic in general toward the profession itself.
METHODS: Over a three year period 1996 – 99 all first year internal medicine and medicine-pediatric residents were asked to complete and return a mailed 18 item survey regarding their attitudes toward certain patient types and the profession. The survey was administered the first day of the internship, again in mid-November, and in June in the last month of internship. Items were phrased in the form of "what percentage of " (example: what percentage of those on disability are truly disabled?"). Analysis was with repeated measures analysis of variance.
RESULTS: Results: Sixty one of 80 interns (76 % response) completed all 3 administrations of the survey and were included in the analysis. In general, there were statistically significant differences in attitudes from the first administration to the second in all categories (all changes reflecting less idealism), with attitudes remaining the same for the second to third administration. For example, interns believed a lesser percentage of persons on disability were actually disabled (62% vs. 46%/44%, p < 0.0001). Interns believed significantly more patients requesting narcotics were drug seekers (18% vs. 32%/ 34%, p < 0.001), and a lesser percentage of persons over 75 could care for themselves independently (62% vs. 50%/48%, p < 0.0001). Regarding the profession, interns believed a less percentage of physicians love what they're doing. (65% vs. 53%/46%, p < 0.0001).
CONCLUSION: Interns become less idealistic toward patients and the profession throughout internship, with the greatest change within the first five months. Future studies should investigate how attitudinal changes may influence clinical care and the doctor-patient relationship.

**TEACHING APPROPRIATE INTERACTIONS WITH PHARMACEUTICAL COMPANY REPRESENTATIVES.** J.L. Wofford[1], C.A. Ohl[1]; [1]Wake Forest University School of Medicine, Winston-Salem, NC *(Tracking ID #51358)*

BACKGROUND: The influence of pharmaceutical company representatives (PCRs) on prescribing habits and professional behavior of MDs is significant. However, teaching the skills for interacting with PCRs is not part of the traditional medical school curriculum.
METHODS: We examined whether a single, brief, mandatory group discussion for third year students had immediate effects on knowledge/attitudes regarding PCR encounters. Two faculty members and one veteran PCR facilitated the ninety minute group discussion that highlighted the characteristics of typical PCR encounters, the use of samples/gifts, the validity and legal boundaries of PCR information, and associated ethical issues. Role plays with the

PCR demonstrated appropriate techniques for interacting with PCRs. Pre- and postintervention surveys solicited opinions (five point Likerd scales) about the educational value of PCR information for practicing and student physicians, degree of bias of PCR information, influence of PCRs on prescribing habits, and acceptability of specific gifts.
RESULTS: From the 74 students surveyed, 55% of students (42/74) had >3 personal PCR encounters about a drug product since starting medical school, and only 5.4% (4/74) claimed no previous personal PCR encounter. Preintervention opinions showed moderate educational value of PCR detailing (mean + 1SD 2.76 + 0.99), with no perceived difference in educational value to students versus practicing physicians (t-test p < .07), and no association between number of previous encounters and educational value (ANOVA p = .08) Only 42.7% (32\75) of students were aware of any available guideline regarding PCR encounters. 28.0% of students (21\75) thought activities/gifts should not be restricted at all, and 24.0% (8/75) thought students should be restricted only from sporting events. The perceived educational value of PCR detailing to students increased after the intervention (mean 2.76 to 3.23 on the 5 point Likerd scale, t-test p < .0001). Student perceptions of bias of PCR information decreased from 4.27 to 3.93 (p < .0001), and the perceived degree of influence on prescribing increased (3.34 to 3.68, p = .0002).
CONCLUSION: Students have early exposure to PCRs. Even a brief group discussion can influence attitudes toward PCR encounters. Developing training experiences for appropriate PCR encounters is more reasonable than restricting PCR contacts altogether.

**EXPLORING THE ROLE OF THE COMPUTER-BASED LECTURE IN A CLINICAL CLERKSHIP.** J.L. Wofford[1], M.M. Wofford[1], G. Solis[1]; [1]Wake Forest University, Winston-Salem, NC *(Tracking ID #51712)*

BACKGROUND: How to best position the computer in a clinical clerkship requires balancing the apprenticeship model of learning with the need for educational efficiency of the clinican-educator. Our goal was to (1) develop a clinical clerkship that minimized faculty lecture time by taking advantage of a digital lecture library and (2) refine the lecture library through a quality improvement strategy.
METHODS: We used a stepwise quality improvement approach in evaluating a CD-ROM lecture library developed from an existing "live" lecture series. Third year students on an Ambulatory Internal Medicine clerkship were asked about viewing styles, quality of lecture, learning value of the CD-ROM lecture, and preference for a "live" versus computer-based lecture.
RESULTS: Ninety-six students were asked at least one question related to quality of the CD-ROM lectures. Of the 22 students asked about viewing styles, all viewed the lecture alone, and the majority (14\22) viewed the lecture only once. 80 of 104 student responses (76.0%) rated the lecture as having good learning value (4–5 on a 5 point Likert scale) compared with previous learning experiences. Students appreciated lectures from unfamiliar lecturers as much as those from lecturers who subsquently held case conferences on the subject. Over one half of evaluations (53.6%, 45/84) expressed a clear cut preference for computer-based lecture as judged by a consensus rating (2\3 blinded reviewers), 20.3% (17/84) a clear cut preference for the "live" lecture , and another 15.5% (13\84) no clear cut preference for either "live" or computer-based lecture.
CONCLUSION: The computer based lectures was an acceptable alternative to the "live" lecture in this clinical clerkship. Among other advantages, a digital lecture library improves the quality management of didactic materials.

**EVALUATING AN END-OF-LIFE CURRICULUM.** A.C. Yacht[1], J.D. Orlander[1], S. Franco[1]; [1]Boston University School of Medicine, Boston, MA *(Tracking ID #51430)*

BACKGROUND: The ability to treat the many needs of patients at the end-of-life is important for practicing physicians. In 2000, our residency program mandated a one-week end-of-life curriculum for all PGY-2 residents. The curriculum consisted of an orientation with a staff oncologist addressing principles of hospice care, distribution of a manual of published core articles and brief topic digests, and home visits through one of three local hospice agencies. We sought to determine if such a curriculum could improve trainee knowledge and attitudes on issues central to end-of-life care.
METHODS: Each participant filled out a pre-rotation questionnaire including demographic questions and case-based, multiple-choice knowledge questions about end-of-life care. Upon completing the rotation, a follow-up questionnaire was administered. This contained identical knowledge questions, as well as questions examining prior exposure to dying patients, prior hospice training, and previous and current attitudes towards end-of-life care and the dying process. A control group of 43 PGY-3 residents naîve to the curriculum was administered the knowledge questions at two separate times, one week apart. Knowledge and attitude changes were evaluated using paired t-tests and Pearson correlation.
RESULTS: 45 of 46 PGY-2 participants completed the pre- and post-rotation questionnaires. Of these, 67% reported that they had received no previous training in end-of-life care and had interacted with ≤2 patients receiving hospice care. The baseline mean correct-score percentage for the knowledge questions was 60% for the participants, improving to 75% after the rotation. This improvement in knowledge was significantly higher than the 62% to 64% change seen in the control group (p < .0001). Participants demonstrated statistically significant improvements in attitude and self-assessed knowledge of end-of-life care in 23 of 24 Likert scale questions. For example, for a question assessing subjective understanding of the philosophy of hospice care (1 = know very little to 5 = know a great deal), the mean pre-score of 2.8 increased to 4.2 after the rotation (p < .0001). For the question "Some training in the care of terminally ill patients should be mandatory for all internists" (1 = strongly disagree to 5 = strongly agree), a mean pre-score of 4.3 increased to 4.8 after the rotation (p < .0001). For a question "I feel as comfortable with a dying patient as I do with any other patient" (1 = strongly disagree to 5 = strongly agree), a mean pre-score of 2.6 increased to 3.2 after the rotation (p < .0001).
CONCLUSION: Although only one week in duration, our new end-of-life curriculum led to significant improvements in participant knowledge and attitudes regarding the conceptual and practical aspects of end-of-life care.

**MEASURING PERFORMANCE OF PRIMARY CARE SKILLS: A RICH FORMATIVE EVALUATION FOR RESIDENTS AND PROGRAMS.** S. Zabar[1], A. Kalet[1], M.D. Schwartz[1], K. Hanley[1], D.P. Stevens[1], E.K. Kachur[2], M. Lipkin[1]; [1]New York University, New York, NY; [2]New York, NY *(Tracking ID #51723)*

BACKGROUND: Residency Programs are challenged to objectively assess residents' competence across the broad range of clinical skills. We piloted a comprehensive performance based Primary Care assessment for Internal Medicine residents to reliably and validly evaluate core internal medicine competencies, provide feedback to residents, and improve programmatic evaluation.
METHODS: Cases: A 10-station faculty observed, objective structured clinical exam (OSCE) was developed. Eight standardized patient (SP) cases represented common primary care issues seen in our medically underserved, ethnically and culturally diverse patients. Two Standardized Student (SS) cases assessed residents' teaching skills. Core competencies evaluated included: hypothesis generation, management of chronic and acute diseases, phone consultation, teaching students, giving feedback, and patient education. Assessment: Instruments were developed using an evidence based conceptual model of interviewing skills, evidence based guidelines for diagnosis and treatment, literature on OSCE assessment tools and prior experience. In each station faculty completed a 22 item behavioral checklist for data gathering, rapport building, patient education, knowledge base and synthesis. Global ratings (1–9 scale) of overall performance, communication skills and fund of knowledge were also recorded. SPs/SSs evaluated residents' overall performance too. Faculty and SPs/SSs were trained to be reliable and valid raters using videotape review and group consensus building. After each case, residents assessed their own performance on the same 9-point scale. Correlations among faculty, SP/SS, and resident scores were done as a measure of convergent validity. Residents received faculty feedback at each station and subsequently received individual summary reports of their performance as compared with their PGY cohort.
RESULTS: 34 internal medicine residents participated (24 Primary Care residents & 10 categorical, 50% female, 12 PGY1, 11 PGY2, & 11 PGY3). The global scores for overall performance had a mean of 6.2 (range 5.4 to 7.7) and overall communication skills had a mean of 6.2 (range 5.10 to 7.8). Residents' self-evaluations correlated positively with the faculty's assessment of overall performance (r = . 423, p = . 01) and overall communication skills (r = . 430, p = . 01). The correlation between SP and faculty rating of communication skills was also considerable (r = . 473, p = .005). Residents were highly satisfied with the OSCE with 74% reporting that it was both educational and provided valuable feedback.
CONCLUSION: A comprehensive performance based Primary Care assessment can meaningfully measure specific areas of clinical skills. This standardized formative assessment tool has implications for setting standards for evaluation of clinical competency and shaping residency curricula.

**FEMALE AND SENIOR RESIDENTS OUT-PERFORM COLLEAGUES ON A PRIMARY CARE COMPETENCE ASSESSMENT.** S. Zabar[1], D.P. Stevens[1], A. Kalet[1], M.D. Schwartz[1], K. Hanley[1], E.K. Kachur[1], M. Lipkin[1]; [1]New York University, New York, NY *(Tracking ID #51744)*

BACKGROUND: Program directors need objective measures of clinical competence to assess developmentally appropriate progress through the training years and to understand how important variables such as gender and level of training effect those measurements. At NYU, an urban inner city residency training program, we implemented a comprehensive performance based Primary Care assessment for Internal Medicine residents. We sought to compare the performance of residents by gender and training level.
METHODS: We developed a 10-station faculty observed, objective structured clinical exam (OSCE) using eight standardized patient (SP) and 2 standardized student (SS) cases to represent common primary care and teaching scenarios. Core competencies assessed included: phone consultation, management of chronic and acute diseases, teaching students, giving feedback, patient education, and hypothesis generation. In each station trained faculty completed a 22 item behavioral checklist evaluating 5 domains: 1) data gathering 2) rapport building 3) patient education 4) knowledge base 5) synthesis. Faculty also recorded global assessments of overall performance, communication skills and fund of knowledge. SPs and SSs evaluated residents' overall performance. Mean scores were compared by resident's gender and training level.
RESULTS: 34 internal medicine residents participated (24 Primary Care residents & 10 categorical, 50% female, 12 PGY1, 11 PGY2, & 11 PGY3). The mean overall performance score was 6.2 (range 5.4 to 7.7) on a 1–9 scale and differed significantly by PGY level and gender. PGY 3s overall performance exceeded PGY1s and 2s (6.5 vs. 6.0 & 5.9, p = .05). PGY 3s also outperformed all others on the synthesis subscale of 1–4 (3.2 vs.3.0, p = .05). Women scored better than men on overall performance (6.5 vs. 6.0 p = .05) communications skills (6.7 vs. 6.0, p = .02), rapport (3.2 vs. 2.9, p = . 002), data gathering (3.1 vs. 3.0, p = .02), and patient education (2.9 vs. 2.7, p = .05).
CONCLUSION: A comprehensive performance based Primary Care assessment can meaningfully measure specific areas of clinical skills across training levels. The superior performance of women, if it holds under further study, raises important issues of whether male residents require different training in communications skills, patient education and data gathering.

## QUALITATIVE RESEARCH

**INFORMING THE COMMUNITY WHEN CONDUCTING RESEARCH IN EMERGENCY CIRCUMSTANCES.** S. Baid[1], S. Rohr[1], G.C. Wickstrom[1], L. Clough[1]; [1]Summa Health System, Akron, OH *(Tracking ID #50745)*

BACKGROUND: Community consultation and public disclosure are important steps in carrying out ethical emergent research. However, little guidance is provided regarding the

form and content for appropriate community consultations. It is proposed that selected members of the community can provide useful insight into this issue. The purpose of this research was to gain insight into community values and preferences for being informed about emergent research.
METHODS: A qualitative study design using a focus group format was used to explore understanding, attitudes and opinions in the general community about informed consent when research is conducted under emergency medical circumstances. Individuals were recruited through random digit dialing and screening telephone interviews. Four focus groups representing distinct subgroups by race and socioeconomic status were conducted. The focus group format incorporated a hypothetical scenario of a stroke victim being enrolled in a "clot buster" procedure study as an example to elicit group discussion. Qualitative analyses were completed by extracting statements from flip chart pages and transcripts from the focus groups. Statements were then grouped and combined to identify frequently occurring themes.
RESULTS: Members of the community preferred the opportunity to hear about the research directly, as opposed to a community consultation through designated representatives. Participants consistently suggested that public disclosure should be carried out using mass media that is likely to capture their attention during the course of daily activities. Yet, participants shared the common experience of exposure to an enormous amount of information daily that is filtered by relevance to their own life situations. Few were aware enrollment is possible without individual consent if they are taken to a local health facility that is conducting emergent research. Most voiced interest in knowing: the benefits and risks; how the research could benefit future generations; where the research is being conducted; who a likely candidate to be enrolled would be; and a contact phone number for additional questions. They expected to hear this from people considered to be experts and people they trusted. Participants from the minority focus groups specifically voiced concern about having direct access to information about medical research in order to make informed decisions in their best interests.
CONCLUSION: The community is more likely to be informed if public disclosure is carried out using a variety of media to which individuals are exposed on a daily basis as they go about their daily routines. However, in an era of information overload, researchers must first find ways to ethically capture the attention of the general public. Informing the community about enrollment procedures may be a useful method to capture their attention during public disclosure.

**CLINICAL RESEARCH MENTOR ATTRIBUTES AND SKILLS.** C.E. Blixen[1], P. Soadwa[2], A.L. Hull[1]; [1]Cleveland Clinic Foundation, Cleveland, OH; [2]Northeast Ohio Universities College of Medicine, Kent, OH *(Tracking ID #51608)*

BACKGROUND: Clinical Research provides a critical link between basic and behavioral science and improving health care and quality of life. Clinicians have a unique perspective on disease processes and patient interventions. However, there is growing concern about a decline in research studies headed by clinicians. One cause may be a shortage of research mentors. Since there has been no comprehensive review of the attributes and skills of an effective clinical research mentor, we undertook this study to identify these characteristics.
METHODS: A Medline search was conducted of all English language publications from 1990 – 2001 that addressed the terms "clinical/research/mentor." An abstracting tool was developed to record: title; author(s); journal/book; date; source of the content (research, experience); socio-demographic mentor attributes; and positive attributes and skills of the mentor. We achieved significant inter-rater reliability using the instrument.
RESULTS: 154 articles were identified and reviewed. Most articles (57%) came from nursing journals, 18% from medical journals, and 25% from other bulletins and journals. Literature reviews were most common (55%), followed by essays (23%), qualitative research (10%), quantitative research (7%), and editorials (3%). Mentor sociodemographic attributes (social status, gender, ethnic/racial background, and age) were not important dimensions of the mentor-mentee relationship; attributes and skills of the mentor were most significant to the relationship. The most common attribute was promoting professional development (58%), followed by mentee advising, guiding, and directing the mentee (57%), providing structure and support (50%), teaching content-specific knowledge (36%), providing encouragement (35%), sharing information and experiences (34%), promoting self-confidence (32%), promoting networking (31%), offering constructive criticism and feedback (29%), promoting personal growth and development and enhancing skills and intellectual development (26%), and committing time and energy to the relationship (24%). The majority of the literature focused on "mentors" and "mentorship" in general; only 9 articles specifically addressed the term "research mentors" (6%). However, the attributes and skills of the research mentor in these 9 articles were similar to the general "mentorship" literature. Unique research specific attributes of focusing the research project and having experience with statistics and grant writing identified in 5 of the 9 articles (56%).
CONCLUSION: The attributes and skills of a mentor that were identified in the literature appear to be leadership and interpersonal skills in addition to skills in research methods. Content knowledge was mentioned in only 36% of the articles. A survey of clinical research mentors and mentees is planned to confirm our findings. Our goal is to identify prospective clinical research mentors and improve their mentoring skills to promote clinical research activities among junior clinicians at this institution.

**SOCIAL SUPPORT: WHEN MORE EQUALS LESS.** C. Boutin-Foster[1], M.E. Charlson[2]; [1]Cornell University Medical College, New York, NY; [2]Cornell University, New York, NY *(Tracking ID #51205)*

BACKGROUND: Over the past decade, several studies have demonstrated the positive impact of social support on the outcomes of patients with coronary artery disease. Less is known however about the potentially negative impact of social support. Therefore among patients with coronary artery disease, the purpose of this study was to evaluate their perceptions of the negative aspects of social support.
METHODS: Open-ended interviews were conducted with patients who were admitted to the cardiac telemetry unit with a diagnosis of chest pain, angina, or myocardial infarction. Patients were asked " Can you describe the types of things that your family, close friends, and health care providers have done to try to be helpful or supportive but actually caused you more stress or was unhelpful to your health?" Data was collected and analyzed through an iterative process using qualitative analysis techniques. The data was first sorted according to groups of social network members: family, friends, and health care providers. Within each group of social network members, responses were then coded into concepts which were then further developed into themes.
RESULTS: Of the 50 patients interviewed, the mean age was 67, 17% were female, 24% were African-American, 10% were Latino, and 84% of patients had completed high school. Approximately 46% of patients had a diagnosis of coronary artery disease for a period greater than 3 years. A total of 15 concepts describing the kinds of things that social network members did that were perceived as being stressful or unhelpful by patients were developed. Among networks of family members, major concepts which emerged regarding the negative aspects of social support included making too many decisions for the patient, giving a lot of health advice, and constant reminders about health behaviors. Within the social network of friends, major concepts regarding the negative aspects of social support included frequent invitations to go out for social engagements, talking too much, expressing too much sympathy, and giving a lot of advice. Major concepts which emerged regarding actions of health care providers included giving a lot of medical information, maintaining a calm and serious affect, and not fulfilling promises to return to visit the patient. Loss of control and increased vulnerability were prominent themes that were derived from these concepts.
CONCLUSION: Attempts to provide social support may paradoxically be perceived as being stressful or unhelpful. Certain acts intended to provide social support may inadvertently make patients feel as if they have lost control or may make them feel more vulnerable. Evaluating the negative aspects of social support can provide a more complete understanding of how social support functions both negatively and positively and can aid in tailoring social support interventions which better address patients' needs.

**PATIENTS DISPLAY SIX DISTINCT DECISION-MAKING PATTERNS FOR ELECTIVE KNEE REPLACEMENT SURGERY.** H.J. Chang[1], D.L. Sittig[1], P.C. Saffold[1], R.G. Mrtek[1]; [1]University of Illinois at Chicago, Chicago, IL *(Tracking ID #51853)*

BACKGROUND: Osteoarthritis (OA), the leading cause of disability in the United States, has a significant impact on quality of life (QOL). In patients with severe knee OA, total joint replacement (TJR) surgery relieves chronic pain, restores lost function, and is cost-effective. Recent reports, however, indicate TJR may be underutilized and that utilization varies widely by both race/ethnicity and gender. This study was conducted to more fully examine patient attitudes and feelings when faced with the need to make a decision about elective TJR surgery.
METHODS: A concourse of statements describing reasons for surgical referral was developed and sampled. 45 patients with severe knee OA participated in the study after each received a recommendation to have TJR. Respondents were asked to sort 34 statements by relative importance in their decision regarding TJR surgery. By-person factor analysis (PQMETHOD, ver. 2.09) using PCA factor extraction and varimax rotation was performed.
RESULTS: Analysis identified 6 distinct patient decision-making approaches (Types 1 – 6), accounting for 57% of response variation. Type 1 respondents were most self-reliant, based their decision solely on their ability to maintain independence, and took full responsibility for their decisions. This group was composed of older, highly educated Caucasians. Type 2 respondents were very religious, and placed control for the TJR decision mostly in the hands of God and their physician. They distinguished between long-term and short-term independence. Type 3 respondents based their decision on trust in their physician and their family's opinions. This group consisted of older women with lower education levels. Type 4 respondents ranked trust in their physician most highly and trusted to God to see them through surgery, although they did not place the decision in His hands. Cost and pain were not at all important to this group. This group was homogeneous, consisting of older, well-educated Caucasian women. Type 5 respondents expressed the desire to have surgery only after all other options were exhausted. They placed more importance on other patients' experiences than on family opinion and tended to postpone surgery due to lack of social support during the recuperation period. This group was younger than the rest and well educated. Type 6 respondents believed God would help them through surgery but would not necessarily make the decision for them. Their main reason for postponing surgery lay in the possibility of new treatments being developed. This group was well educated but was otherwise quite diverse.
CONCLUSION: Our results suggest that differences in patient utilization of TJR may reflect a difference in patient decision-making processes, and that these processes may be predictable based on patient demographics and beliefs. Our findings suggest that guidelines for TJR that do not address these differences in approach may not be successful at reducing variation in utilization.

**PROMOTING PATIENT ACCESS TO MEDICAL RECORDS: A QUALITATIVE ANALYSIS OF PHYSICAN ATTITUDES.** S.E. Ross[1], M.A. Earnest[1], C. Lin[1], L. Wittevrongel[1]; [1]University of Colorado Health Sciences Center, Denver, CO *(Tracking ID #52361)*

BACKGROUND: The Institute of Medicine has suggested that making records more portable and patient-accessible will improve quality by enhancing communication among a patient and his or her doctors. Information systems are being developed to make medical records more patient-accessible. Physician attitudes will profoundly influence whether and how these systems will be adopted.
METHODS: 8 physicians from a cardiology practice are participants in a randomized study that allows patients to read their medical records over the Internet. Before any patients were given access to their records, 7 of these physicians participated in individual semi-structured interviews. Interviews were taped, transcribed, and analyzed for thematic content in a manner informed by grounded theory.
RESULTS: All participants agreed that patients had a right to review their records. There was skepticism, however, about whether the medical record was truly intended for patients to read. Some participants already documented in a fashion that kept the possibility of future patient access in mind. Others were more concerned about the possibility that patients would be

offended by the record, particularly about psychological issues. Participants were also concerned that promoting patient access to the medical record would inappropriately increase staff and physician workload, as patients were confused by technical terms and laboratory and radiographic data. Although participants did not anticipate substantial improvements in patient compliance or function, most felt that patients who were given access to their medical records would be more satisfied with their care.
CONCLUSION: While physicians feel that patients have an abstract right to read their records, some are skeptical about the appropriateness of promoting patient access to the medical record. These physicians are particularly concerned that such access may cause offense or confusion, and that it may increase the workload of themselves or their staff. These concerns will need to be addressed before systems that promote patient-accesible medical records will be adopted.

**EFFECTS OF NYTOGLICERIN VERSUS ATRIAL NATRIURETIC PEPTIDE IN ISALOATED RAT HEARTS ACCORDING TO LANGENDORFF'S TECHNIQUE.** J. Garcia[1]; [1]Wayne State University, Troy, MI *(Tracking ID #45834)*

BACKGROUND: For 100 years nitroglycerin (NTG) has been used as a coronary vasodilator in heart ischemic events because of its effect on epicardial coronary arteries without any significant change on coronary vascular flow, but particularly on coronary vascular resistance. There has been many attempts at this time to stablish that there is no difference between atrial natriuretic peptide (ANP) and nitroglycerin (NTG) on coronary vascular resistance.
METHODS: The study was based on a experimental design, of longitudinal character, primary source, analitic and comparative. It was done on three populations of rats hearts to measure coronary vascular flow according to Langendorff's technique. One group being the control and the other two groups atrial Natriuretic peptide (ANP) and nitroglycerin (NTG) respectively.
RESULTS: We found an important increse in coronary vascular blood flow within the nitroglycerin (NTG) and atrial natriuretic peptide (ANP) groups of 13.16 ± 3.20 ml/min and 13.80 ± 1.34 ml/min respectively, compared to a control group with a value of 5.62 ± 0.43 ml/min. Demonstrating this way that there was a considerable and comparable coronary vascular blood flow increase for the nitroglycerin (NTG) and Atrial natriuretic peptide (ANP) group compared to the control group.
CONCLUSION: We conclude that ANP acts as a coronary vasodilator and increases vascular flow in isolated perfused rat hearts.

**CHARACTERIZING MEDICAL STUDENT MENTORING RELATIONSHIPS: A FOCUS GROUP STUDY.** K.E. Hauer[1], A. Teherani[1], A. Dechet[1], E.M. Aagaard[1]; [1]University of California, San Francisco, San Francisco, CA *(Tracking ID #51407)*

BACKGROUND: Prior research has shown that many medical students fail to find mentors despite overwhelmingly endorsing the importance of these relationships. Characteristics of successful medical student-faculty relationships and methods to promote mentoring during medical school are poorly understood.
METHODS: We recruited 4th year medical students via email using purposive sampling and organized them into 4 focus groups each consisting of 4 to 8 participants. Groups were led by 2 trained moderators who explored what students sought from mentors and perceived barriers to mentoring. Students were asked for suggestions to improve the current system which does not actively promote mentoring but does require contact with a career advisor for clinical students. Discusions lasted 60 to 90 minutes and were audiotaped and transcribed verbatim. Data were analyzed using grounded theory, a process of open and axial coding followed by group discussion among the 4 investigators to develop major themes.
RESULTS: Twenty-four students participated. Students identified support and trust as the central elements of mentoring relationships. Commonly described functions of mentors included listening, advocacy, and advising with respect for an individual student's goals. They sought career advice in the context of personalized, safe, longitudinal relationships with faculty. Potential mentors were characterized by their ability to blend satisfying personal lives and professional roles. Women did not percieve their gender as a barrier to mentoring. None of the students mentioned faculty rank or professional success as an important qualification for mentoring. The short duration of courses and clerkships, abrupt change from preclinical classroom-based learning to clerkships with new language and culture, and limited exposure to a diversity of clinicians were cited as major barriers to developing close relationships with faculty. To improve mentoring, students recommended that the school explicitly promote mentoring with early education about how to find mentors, placing the responsiblity on students but informing faculty of the need to be available for and supportive of students.
CONCLUSION: Medical students characterize mentors in terms of the interpersonal dynamics of the relationship, emphasizing personal connection and trust. Educating and empowering students in addition to enhancing faculty's understanding of students' needs may improve the success of mentoring.

**AN EXPLORATION OF COMMUNICATION FACTORS ASSOCIATED WITH PATIENT'S TRUST AND SATISFACTION.** J.L. Jackson[1]; [1]Uniformed Services University of the Health Sciences, Bethesda, MD *(Tracking ID #50768)*

BACKGROUND: Satisfaction and trust are emerging as important issues in patient care. Our purpose was to explore domains of satisfaction and trust as they relate to aspects of the patient-doctor communication dyad.
METHODS: 250 adults presenting to a primary care walk-in clinic completed postvisit surveys that measured their satisfaction (RAND 9-item) and trust. Audiotapes of the visit were coded into specific types of utterances and communication domains using the Roter Interaction Analysis System (RIAS). An utterance was defined as a complete thought and was coded, using RIAS, into one of 28 comprehensive and mutually exclusive categories. Patient satisfaction and trust were dichotomized as fully satisfied and fully trusting due to the high degree of skew and were tested for associations with various communication domains using univariate and multivariate analyses.
RESULTS: Patients averaged 50 years in age, 55% were women, 43% African-American, and 43% white. Twenty-one clinicians participated in this study, 42% of which were women. The average encounter had 184 utterances, 53% (95% CI: 51-54%) of which were made by the clinician. Most patients were fully satisfied with their care (60%) and fully trusted the clinician they saw (70%). Trust and satisfaction were highly correlated (r = 0.68). Longer sessions were associated with greater patient satisfaction (201 vs 153 utterances, p < 0.00001) and trust (190 vs 160 utterance, p = 0.003). Several clinician communication domains were associated with increased satisfaction including utterances showing empathy, concern, providing self-disclosure, using more open-ended questions, and including counseling on life-style and psychosocial issues. Clinician communication domains associated with greater trust included utterances demonstrating empathy, asking life-style questions, asking more open-ended questions and counselling regarding psychosocial issues. Patient communication domains associated with increased satisfaction included spending more time telling their story, being allowed to ask more questions regarding therapy, a greater number of utterances regarding psycho-social issues and utterances of agreement with the clinician's plan. Patients who asked more questions regarding therapy and who were heard to agree were more trusting of their clinician.
CONCLUSION: A more open, patient-centered communication style with a greater proportion of psychosocial talk was associated with increased patient trust and satisfaction.

**HOW OFTEN DO PRIMARY CARE CLINICIANS DISCUSS DIAGNOSIS AND PROGNOSIS WITH PATIENTS?** J.L. Jackson[1]; [1]Uniformed Services University of the Health Sciences, Bethesda, MD *(Tracking ID #50821)*

BACKGROUND: We previously found that clinicians and patients usually agreed on objective aspects of the patient-doctor encounter such as whether or not prescriptions, referrals or diagnostic tests were done (kappa>0.85 for all). However, they disagreed about communicative aspects of the encounter such as whether patients were told what was causing their problem or how long to expect the problem to last (k < 0.2 for all). Our purpose was to code audiotapes of patient-doctor encounters to determine who is correct.
METHODS: 250 patient visits to an internal medicine walk-in clinic for a physical complaint were audiotaped. Post visit patient surveys assessed satisfaction (RAND 9-item survey), trust, residual expectations, and whether or not the doctor provided diagnostic and causal information about their symptom. Post visit MD surveys assessed encounter difficulty (DDPRQ), what was done for the patient and what diagnosis, if any, was given. Audiotapes were coded using the Roter Interaction Analysis System. Any utterances concerning diagnostic or prognostic information were transcribed and subsequently coded as being either an explicit or implicit statement. An explicit diagnostic statement would be: "You have sinusitis" an implicit one would be "I don't think this is cancer or anything serious." An explicit prognostic statement would be "I think this will get better in the next 3 or 4 days" an implicit statement would be "Come back and see me if it doesn't get better soon."
RESULTS: Twenty-one clinicians participated in the 250 patient encounters. Patients who reported receiving diagnostic and prognostic information were more likely to both fully trust the clinician they saw (RR: 1.4, 95% CI: 1.1 – 4.7) and be satisfied with the care they received (RR: 1.2, 95% CI: 1.0 – 1.5). While patients reported being told what was causing their problem 70% of the time and how long to expect it to last 51% of the time, clinicians reported giving such information most (85%) of the time. Clinicians recorded a specific diagnosis on their post-visit survey in 224/248 encounters (90%). In contrast, audiotape analysis found that diagnosis was discussed only 67% of the time, and that only 23% of encounters contained explicit diagnostic statements. Prognostic information was presented in only 30% of cases with 15% of tapes containing explicit prognostic statements. Interestingly, kappas for both patient and clinician agreement on whether either category of statements occurred was low (kappas <0.20 for all).
CONCLUSION: Surprisingly little communication regarding diagnosis and prognosis occurs during clinical encounters. While clinicians believe they are providing this information most of the time, objective audiotape analysis found it to occur less frequently and largely at an implicit level. Patients receiving diagnostic and prognostic information were more likely to trust and be satisfied with the clinician they saw. Whether improved communication skills can improve other patient outcomes remains to be studied.

**AFRICAN AMERICAN WOMEN'S VIEWS OF THE TRUSTWORTHINESS OF HEALTH CARE.** E. Jacobs[1], C.E. Ferrans[2], R.B. Warnecke[3]; [1]Cook County Hospital, Collaborative Research Unit, Chicago, IL; [2]University of Illinois at Chicago, College of Nursing, Chicago, IL; [3]University of Illinois at Chicago, Health Policy Center and Center for Health Services Research, Chicago, IL *(Tracking ID #51597)*

BACKGROUND: An abundance of research has documented disparities in health and health care between African Americans and Caucasians, yet the reasons behind these disparities are still not clearly understood. One of the many possibilities is that African Americans are less trusting of physicians and health care institutions and therefore less likely to seek or accept care. The purpose of this study was to explore the determinants of trust in physicians and health care institutions among African American women and how their views of the trustworthiness of care influence their health care decisions.
METHODS: Six focus groups (FG) of African American women (42 – 73 yrs; n = 49) were conducted. Women were recruited from a county clinic (3 FGs) and a non-profit community organization (3 FGs). An African American woman moderator facilitated all groups using a culturally sensitive interview guide. Discussions were audio taped, transcribed and coded by themes for interpretation using grounded theory.
RESULTS: The following themes were identified: (1) Trust is determined by the interpersonal competence of physicians and the technical competence of health care institutions. (2) The race of the physician rarely plays a role in determining trust. (3) Physicians and for profit health care institutions are generally distrusted among the African American community. (4) The insurance and socioeconomic status of African Americans is a more important determinant

of the quality of care they receive than their race. (5) Routine care is often experimental care. (6) Distrust and fear of experimentation influences African American men's decisions about health care more often than women's decisions. (7) African American women seek out care but are often denied it because of a lack of insurance or other monetary resources.
CONCLUSION: African American women view health care as untrustworthy because it has often failed to provide them with interpersonally competent care without regard to their ability to pay. These findings suggest that health disparities among African American women may best be addressed by increasing their financial access to quality care.

**EFFECT OF VAGOTOMY ON ACUTE PANCREATITIS IN RATS.** L. Jinsong[1]; [1]Tongji Medical University, Wuhan, Hubei, P.R. China *(Tracking ID #51682)*

BACKGROUND: Acute pancreatitis (AP) is a common acute abdomen with high mortality. The main mechanisms of its pathogen and pathogenesis are still unknown. Restraining secretion of pancreas is used to decrease complication of AP in current clinical practice. A lot of information indicates that vagus has direct domination on exocrine of pancreas. The purpose of this study was to investigate whether the vagotomy (VG) had effect on AP.
METHODS: 182 SD rats were randomly divided into the normal control, fast operating and food-intake operating group (10 rats/group). The experimental model of acute pancreatitis was established by injecting 5 % sodium taurocholate into the pancreatic duct according to the Aho's method. The sandostatin was used for positive contrast. The concentrations of serum amylase, calcium, C reaction protein (CRP), interleukin-6 (IL-6) and the pathological sections were assayed respectively at different time points. The mortality of the operating groups was observed during the 24 h.
RESULTS: The serum amylase level in the AP rats was reduced after receiving vagotom ($P < 0.05$).Although the serum calcium level in most groups was decreased, the reduction in the group with VG plus sandostatin was not obvious ($P > 0.05$). The increase of CRP and IL-6 was not obvious after VG ($P > 0.05$). The change of mortality was not significant ($P > 0.05$). The pathological sections showed that the AP pathological change was mild after VG. The disease condition of food-intake operating group was more serious than that of fast operating group.
CONCLUSION: Our results suggest that VG has definite influence on the prognosis of AP in rats.

**BARRIERS AND FACILITATORS TO FACULTY DEVELOPMENT IN US TEACHING HOSPITALS.** R.B. Levine[1], M.W. Jenckes[1], J.M. Clark[1], T.K. Houston[2], W.T. Branch[3], D.E. Kern[1]; [1]Johns Hopkins University, Baltimore, MD; [2]University of Alabama at Birmingham, Birmingham, AL; [3]Emory University, Atlanta, GA *(Tracking ID #51766)*

BACKGROUND: A significant portion of medical education occurs in ambulatory settings where clinical productivity requirements are increasing and time for teaching is decreasing. This requires more teachers with diverse and efficient teaching skills. The purpose of this study was to develop a detailed understanding of Faculty Development (FD) in educational skills on a national level.
METHODS: We conducted a national survey of U.S. teaching hospitals to determine the prevalence and nature of ongoing FD activities. Quantitative data from this survey have been presented elsewhere. A series of open-ended questions assessed major facilitators, major barriers, and the most important needs related to FD. Content analysis was performed on responses. Two researchers independently identified themes. Consensus on themes was reached by comparison.
RESULTS: The overall response rate was 72% (277/386). Respondents were predominately Department of Medicine chairs and residency program directors. Not every respondent completed all open-ended questions. Respondents described a concept we characterized as "culture". Central to this theme were faculty and institutional attitudes toward teaching, academic and financial rewards systems and allocation of resources. Faculty motivation to improve teaching skills and committed and expert leadership were important facilitators for FD. Emphasis on clinical productivity and lack of recognition of teaching as a valued academic activity were barriers to FD. Other barriers were lack of financial incentives, infrastructure, and protected time. Recognition of the "importance of teaching and the role of FD" was viewed as a major need related to FD.
CONCLUSION: Culture is a powerful force in influencing individuals and institutions. Our findings suggest the same force is important with regards to FD. Strong leadership and shifts in institutional attitudes towards the value and rewarding of teaching may be necessary for the success of further FD efforts.

**PATIENTS' BELIEFS ABOUT CONTROLLING THEIR CANCER.** L.B. Link[1], L. Robbins[2], C. Mancuso[1], M.E. Charlson[1]; [1]Weill Medical College of Cornell University, New York, NY; [2]Hospital for Special Surgeries, New York, NY *(Tracking ID #50805)*

BACKGROUND: Receiving the diagnosis of cancer has frequently led people to feel out of control, yet there is evidence that people who feel in control of their cancer adjust better to their illness. As people become increasingly involved in the management of their health, cancer patients may also be more likely to try to gain control over their disease. The purpose of this study was to understand how adult cancer patients from an urban medical center try to control their cancer.
METHODS: This was a qualitative study of patients diagnosed with cancer in the previous 6 to 24 months. Participants were recruited from three oncology practices that varied socio-demographically. Information was obtained through one-on-one, semi-structured, audiotaped interviews that were conducted in-person and lasted 50 to 135 minutes. Participants were asked if they had done anything to try to gain control over their cancer or situation. If they answered "yes," they were asked, "What specific things have you done?" If they answered "no," they were asked, "Have you made any changes in your life since you were diagnosed with cancer?" The interviews were transcribed verbatim and analyzed using grounded theory. To insure reliability, The Ethnograph(tm) program was used to organize the data.
RESULTS: Of the 44 participants, 38% were male and 84% Caucasian. The mean age was 57 years and median education was 16 years. There were 19 different cancer diagnoses, with breast (34%) and lung cancers (21%) most common; 23% had metastases and 57% were on treatment. Eighteen participants said they had done things to take control, 11 said they had not, and 15 were ambivalent in their responses. The strategies for control were characterized as either proactive involvement in improving one's well-being or mechanisms of adapting to the situation. The strategies that required proactive involvement included making lifestyle changes, addressing medical issues, having a positive attitude, turning to religion, managing emotions, and getting psychosocial support. Using avoidant behaviors, planning for death, and accepting the diagnosis were examples of mechanisms of adapting to the situation. Both the proactive and adaptive strategies were also used by participants who did not think of them as forms of control.
CONCLUSION: Strategies such as making lifestyle changes, managing emotions, and planning for death were some of the ways participants tried to take control of their cancer or situation. The types of strategies participants used were the same, regardless of whether they thought of them as forms of control or not. With an understanding of patients' beliefs about controlling their cancer, health care providers may be better equipped to help their patients become more actively involved in their care.

**FORM AND FUNCTION: THE EFFECT OF PHYSICIAN VERBALIZATIONS DURING PATIENTS' INITIAL NARRATIVES.** G. Makoul[1], J. Cashy[1]; [1]Northwestern University Medical School, Chicago, IL *(Tracking ID #50537)*

BACKGROUND: "Physicians interrupt patients within 18 seconds" is a common refrain in courses and meetings about the patient-provider relationship. A recent replication of the original research argues that "redirection" is a better descriptor than "interruption." Since medical interviewing teachers and texts advocate some of the very behaviors that have been labeled as "interruptions" and "redirections," we conducted a study to determine the actual effect of physician verbalizations during patients' initial narratives.
METHODS: We videotaped a total of 500 outpatient visits to 20 general internists (10 in Chicago; 10 in Burlington, VT) for an average of 25 patients per physician. 377 (75.4%) of these encounters had initial narratives during which patients began to describe health problems or issues. These initial narratives were transcribed, and the type, timing, and effect of all physician verbalizations were independently coded by two trained research assistants; any disagreements were resolved through discussion. Outliers with initial narratives at least 4sd longer than the mean were dropped (n = 5), yielding 372 transcripts for analysis.
RESULTS: Excluding continuers (e.g., "uh-huh", "mmm-hmm"), mean time to the first physician verbalization was 17.5sec (sd = 21.8). Mean time to the first physician verbalization followed by a shift or stop in a patient's narrative was 61.2sec (sd = 54.8). Closed questions generated more than half (54.8%) of these shifts or stops. On the whole, 44.2% of all closed questions, 39.1% of all open questions, and 39.3% of all multiple verbalizations led to breaks in the narrative. 69.2% of the "multiples" were closed questions paired with other verbalizations.
CONCLUSION: On average, physicians do speak 18 seconds after a patient begins his or her narrative. However, the first functionally interruptive or redirective physician verbalizations occur approximately 1 full minute into the initial narrative. While both closed and open questions are clearly associated with breaks in the narrative, other verbalizations such as elaborators (e.g., "tell me more"), recompleters (i.e., paraphrases), follow-ups (i.e., clarifications), and statements appear to be more benign.

**IMPACT OF LATINAS' BELIEFS ABOUT CERVICAL CANCER ON PAP SMEAR USE.** J. Mcmullin[1], L.R. Chavez[1], A. Hubbell[1]; [1]University of California, Irvine, Irvine, CA *(Tracking ID #52163)*

BACKGROUND: This paper examines the relationship between Latinas' beliefs about the etiology of cervical cancer and their use of Papanicolaou (Pap) exams. In a previous study, we found that Latinas who believed that "unwise" behaviors (such as having multiple sexual partners) were risk factors for cervical cancer were less likely than others to report having a Pap exam within the past three years.
METHODS: We conducted ethnographic interviews with 20 Mexican immigrants who had not received a recent Pap smear. The interviews contained questions about cervical cancer risk factors, Pap smear screening, and reasons for non-receipt of Pap smears. Analysis consisted of qualitative content analysis. Three independent investigators analyzed the interviews and came to consensus regarding key categories and themes.
RESULTS: 18 of 20 respondents reported receiving at least one Pap smear in their lives. They mentioned three overlapping categories of risk factors: physical trauma, poor hygiene, and "unwise" sexual behaviors. Each of these risk factors could lead to infection, the infection could produce symptoms and, if left untreated, it might become cervical cancer. These beliefs influenced the decision to obtain a Pap exam in the following ways. If the woman had suffered genital trauma, had poor genital hygiene, or had engage in "unwise" sexual activities, she was likely to have an infection that could lead to cervical cancer. Therefore, she needed a Pap smear. Likewise, if she had symptoms of an infection, she needed a Pap exam. In the absence of these factors obtaining a Pap exam was viewed as unnecessary.
CONCLUSION: The findings suggest that cervical cancer prevention programs for Latinas should reinforce the notion that cervical cancer is caused by an infection but should stress the need for screening Pap smears whether or not symptoms of an infection are present.

**GENDER DIFFERENCES IN THE PROFESSIONAL SATISFACTION OF FULL-TIME PRIMARY CARE PHYSICIANS.** M. Mcneil[1], C. Lin[2], J.C. Whittle[3]; [1]University of Pittsburgh, Pittsburgh, PA; [2]Graduate School of Public Health, University of Pittsburgh, Pittsburgh, PA; [3]Kansas University Medical Center and VAMC, Kansas City, KS *(Tracking ID #52355)*

BACKGROUND: Previous research has suggested that family responsibilities affect career satisfaction of female physicians. We hypothesized that fewer patient care hours allow greater flexibility for women to fulfill both family and professional roles and result in higher satisfaction. We examined the gender differences in the professional satisfaction of full time primary care physicians in the Veteran's Administration Health Care System.

METHODS: We adapted a 1995 Commonwealth Fund survey regarding satisfaction with medical practice and mailed it to 218 primary care practitioners in one of the 22 Veterans Integrated Service Networks (VISN) in 1998. The response rate was 77%. We compared professional satisfaction by gender for 71 full-time PCPs.
RESULTS: Among full time VA PCPs, a higher proportion of women vs men reported being very satisfied with their overall medical practice (39.1% vs. 33.3%). This was particularly surprising given that 3 of the 4 specific aspects of practice satisfaction thought to predict overall satisfaction were lower for women when compared to men (time with patient, 13.0% vs. 23.4%; time with colleagues, 4.3% vs. 14.9%; ability to remain knowledgeable 8.7% vs. 21.3%). This discrepancy lead to the speculation that something else was driving higher overall satisfaction for women. We next examined gender difference in practice satisfaction with respect to time spent with patient care. For full time PCPs seeing patients less than 30 hours per week, a significantly larger proportion of female vs male physicians reported being very satisfied with their overall practice (54.5% vs. 23.8%, p = 0.04). In contrast, for physicians seeing patients 30 or more hours per week, a much smaller proportion of female PCPs reported very satisfied with overall practices (25% vs. 40.7%). There was a significant difference in female physician satisfaction reported as being very satisfied when providers seeing patients less than 30 hours per week vs 30 or more hours per week (54.5% vs. 25%, p = 0.07). The same differences in satisfaction were noted on subscales comparing less than 30 hours patient care with 30 or more hours: time with patient (27.3% vs. 0%, p = 0.03), time with colleagues (9.1% vs. 0%, p > 0.10), ability to remain knowledgeable (18.2% vs. 0%, p = 0.06), and ability to make decisions (45.5% vs. 16.7%, p = 0.07).
CONCLUSION: The results suggest that full-time female PCPs are more satisfied with medical practices if they see patients less than 30 hours per week. This provides an important insight in the differences in gender satisfaction compared to previous studies.

**COULD WE HAVE KNOWN? AN IN-DEPTH LOOK AT THE STORIES OF WOMEN WHO SURVIVED AN ATTEMPTED HOMICIDE BY AN INTIMATE PARTNER.** C.M. Nicolaidis[1], M.A. Curry[1], P. Sharps[2], Y. Urlich[3], J. Mcfarlane[4], D. Campbell[5], J. Campbell[2]; [1]Oregon Health And Sciences University, Portland, OR; [2]Johns Hopkins University, Baltimore, MD; [3]University of Washington, Seattle, WA; [4]Texas Women's University, Houston, TX; [5]University of South Florida, Tampa, FL *(Tracking ID #51271)*

BACKGROUND: Femicide, the murder of women, is the seventh leading cause of premature death for women in the U.S. Up to half of all femicides are perpatrated by an intimate partner. Our goal was to obtain an in-depth look at the lives of women whose partners had attempted to murder them.
METHODS: We conducted a multi-site qualitative study of women who had survived a homicide attempt by an intimate partner. Cases were identified through district attorney's offices and police departments in 6 U.S cities. Each woman participated in a private, audio-taped, semi-structured interview which lasted 30-60 minutes. Four authors read a subset of interviews to develop a list of provisional themes and 2 other authors confirmed these themes in the entire sample. Cases were also placed in one of 4 categories based on the reviewers' clinical assessment of risk for femicide prior to the attempt. Themes and conclusions were sent to the entire study team for validation.
RESULTS: 30 women participated in the study. 22 had previously experienced domestic violence by the partner who committed the homicide attempt. Four women's stories fit a pattern of repeated, severe, physical assaults and threats from a very controlling partner. Of the remaining abused women, 10 women related stories that included known risk factors for femicide, but 8 women's histories did not portray a heightened risk other than the domestic violence. Eight women did not even have a history of domestic violence. We identified a number of common themes. 14 women related that they had never suspected that their lives were in danger. 15 women described a "trigger" event preceeding the homicide attempt, but many of these events would be indistinguishable from typical relationship conflicts. 18 women noted a recent change in the relationship. Though some changes were classic for heightened danger (e.g. the woman leaving), in 7 cases the change was due to perpetrator becoming involved with another woman.
CONCLUSION: A history of domestic violence remains the most important risk factor for femicide. Though epidemiologic studies have identified additional risk factors, analysis of in-depth interviews of victims demonstrate a that in many cases there is a disturbing lack of clues to their increased risk. Clinicians should not be falsely reassured by the absence of risk factors for femicide in patients experiencing domestic violence. Clinicians should also be aware that victims may attribute the attack to a specific "trigger event", and should openly discuss these events to ensure the victim does not blame herself for the attack. Further research should investigate the male partner's involvement with another woman as another potentially high-risk period.

**EXPECTATIONS OF TREATMENT AMONG HYPERTENSIVE AFRICAN-AMERICAN PATIENTS.** G.O. Ogedegbe[1], C. Mancuso[1], J. Allegrante[1], M. Charlson[1]; [1]Weill Medical College of Cornell University, New York, NY *(Tracking ID #51636)*

BACKGROUND: African-Americans have the highest prevalence of hypertension in the US and they experience a disproportionately higher hypertension-related morbidity and mortality compared to other racial groups. Patient expectations have been linked to improved care and clinical outcomes in patients with chronic diseases. In this study, we elicited the expectations of treatment among a group of hypertensive African-American patients followed in a primary care practice.
METHODS: Computerized medical records were reviewed to identify eligible patients, gather demographic data, comorbidity, and blood pressure readings. In-depth semi-structured open-ended interviews were conducted with 93 patients either during clinic visits or over the telephone. During interviews, patients were asked, "What are your expectations of the treatment your doctor prescribed?" Patients' responses were elicited and clarified with the following probes: 1) Do you expect a cure? 2) Do you expect to take blood pressure medications for the rest of your life? 3) Do you expect to take blood pressure medications whether or not you have symptoms? All responses were written verbatim and analyzed using qualitative techniques. All responses were pooled, read multiple times and sorted into recurring concepts, which were then grouped into categories of similar themes.
RESULTS: Of the 93 patients interviewed, 60% were women, mean age was 55 yrs, 68% had college/advanced degree, 24% were unemployed and 68% had uncontrolled hypertension, defined as SBP >140 and/or DBP > 90 mm hg. A total of 58 different expectations were identified and these were grouped into 3 main categories reflecting medication effects, patients' role, and physicians' role in the course of treatment. Regarding medication effects, patients expected medications to lower their BP, to help them live longer, to be healthy and help prevent heart attack, stroke and kidney failure. Patients expected to take active role in their treatment, especially as it relates to adoption of healthy behaviors such as exercise, dietary restrictions, stress management and weight loss. They also expected their physicians to educate them about medication side effects and duration of treatment. When probed, some misconceptions were elicited among the expectations: 51% expected a cure, 61% did not expect to continue taking their medications for life, and 34% expected to take their medications only when they have symptoms.
CONCLUSION: Patients cited various categories of expectations of treatment for hypertension, among which were several misconceptions. An understanding of patients' expectations regarding the treatment they receive may enhance the quality of the communication between them and their providers, which may in turn lead to greater patient satisfaction and adherence.

**BARRIERS AND FACILITATORS OF CLINICAL PRACTICE GUIDELINE IMPLEMENTATION.** J.A. Pugh[1], R.G. Best[1], F. Moore[1], S. Hysong[2], B. Sugarman[1], S. Hull[3], W. Spears[1]; [1]VERDICT, South Texas Veterans Health Care System and University of Texas Health Science Center at San Antonio, San Antonio, TX; [2]University of Houston, Houston, TX; [3]Well Spring, Temple, TX *(Tracking ID #52309)*

BACKGROUND: The Veterans Health Administartion (VHA) endorses the use of Clinical Practice Guidelines (CPG) to improve quality of care. By creating performance measures based on CPGs, facilities are pushed to improve compliance. Our objective is to describe barriers and facilitators to CPG implementation experienced by VHA facilities.
METHODS: Four Vertically Integrated Service Networks (VISN) were selected based on External Peer Review Program performance scores (3 high performer, 1 low performer) as well as the stated VISN strategy for implementing CPGs. Within each VISN, 4 facilities were chosen based on their performance scores: 1 high, 1 low and 2 improvers over a 2-year period. Semi-structured qualitative interviews were conducted on site (both main facility and one free-standing outpatient clinic) with leadership, quality management, and primary care personnel. Interviews were held with 2–3 individuals at a time gathering descriptions of CPG implementation efforts as well as barriers and facilitators to those efforts. Atlas.ti®, a qualitative analysis software, was used to organize and store codes and associated passages from the interviews.
RESULTS: Numerous barriers to CPG implementation are cited: time constraints (pressure to increase unique numbers of patients in the system, leading to increased panel size and decreased length of visit); competing priorities (e.g., too many CPGs in addition to initiatives to decrease patient waits and delays for clinic appointments, increase patient satisfaction, implement the electronic medical record, JCAHO preparation); focus on numbers not quality; insufficient technology capacity (inadequate staff capable of generating electronic reminders and performance feedback reports); lack of attention and buy-in from leadership (often reflected by lack of dedicated resources); and lack of flexibility in staffing. Facilitators and strategies include: distributing the tasks involved in satisfying a particular CPG across the members of the clinic team; availability of data to be used both for feedback and for targeting specific patients; focus on "doing the right thing" for the patients (including CPG concordant care); and using technology (e.g., electronic clinical reminders, electronic medical record) as a helpful but not sole strategy.
CONCLUSION: VHA personnel have acquired enormous experience in CPG implementation. Teamwork and focus on doing the right thing are facilitators while competing priorities and time and resource constraints are barriers. VHA is the largest health care system in the U.S. Lessons learned in VHA could be applicable to a much broader segment of the U.S. health care system.

**CARING FOR PEOPLE WITH DISABILITIES: WHAT OUR PATIENTS CAN TEACH US.** R.A. Ramanan[1], B. O'Day[2], M. Killeen[2], E. Weil[1], L.I. Iezzoni[1]; [1]Shapiro Institute for Education and Research and the Division of General Medicine, Beth Israel Deaconess Medical Center, Harvard Medical School, Boston, MA; [2]CESSI, Alexandria, VA *(Tracking ID #50883)*

BACKGROUND: Persons with disabilities are especially vulnerable to adverse experiences when seeking health care. This population is also known to have lower rates of routine screening and preventative services. We conducted this study to understand the experience of people with disabilities as they seek medical care and to identify specific barriers to their care.
METHODS: We conducted 17 structured focus groups, each involving between 4 and 11 participants (total of over 100 participants). Among the focus groups, 13 included participants living in metropolitan Boston or Washington DC and 4 included persons from rural Massachusetts and Maryland who have limited access to health care. We enrolled persons who are either Deaf, hard of hearing, blind or have low vision, and persons with major mobility difficulties or serious mental health problems. Our moderators guide addressed eight specific topics: quality of care, access to medical offices, communication with doctors and office staff, access to services, access to doctors, training doctors and office staff, designing doctors offices and publicizing our findings. Trained moderators conducted the focus groups, which were audiotaped and transcribed verbatim. We designed a coding algorithm based on preliminary focus group findings, and then used In Vivo software to sort the texts for analysis. We identified common themes across all focus groups as well as disability-specific patterns of experiences and attitudes.
RESULTS: We identified six major themes representing participants' experiences with health care: 1) communication — receiving inadequate information on medical diagnoses and identifying specific communication barriers (e.g. poor interpreter services); 2) stigma —

feeling disrespected or patronized, especially by discriminatory attitudes and by questions perceived as irrelevant; 3) general etiquette — inappropriate touching (e.g. pushing blind or Deaf people); 4) medical knowledge — physicians with inadequate knowledge about the disabling condition and its medical implications; 5) physical examination procedures — inadequate examinations (e.g. examining persons in their wheelchairs) or inadequate communication during examinations; 6) preventive and wellness care — insufficient counseling about overall health and wellness, including sexuality and exercise.
CONCLUSION: The data from these focus groups identify specific barriers to care and quality problems experienced by people with disabilities, as they seek medical care. Many of the issues identified here, including access and attitude issues, can be improved through medical education. We plan to use these patient experiences to educate medical students and residents, in order to improve the health care of people with disabilities.

**PERCEPTIONS OF HEART DISEASE IN URBAN BLACK WOMEN: A QUALITATIVE VIEW.** K.C. Reinhardt[1], J.P. Block[1], K.B. Desalvo[1]; [1]Tulane University School of Medicine, New Orleans, *(Tracking ID #52002)LA*

BACKGROUND: Quantitative health status surveys used in vulnerable populations do not adequately explain the observed gap between physicians' and patients' assessments of health status. Qualitative methods allow patients to insert their perceptions into the interpretation and development of such measurement tools. Our goals were to (1) explore patients' beliefs about cardiovascular disease and related risk factors and (2) assess whether questions in a current health status instrument used language consistent with the patients' own language and understanding.
METHODS: Using questions from the Charity Hospital Wellness Study '00 survey, we performed cognitive interviews with low-income, urban black women who receive care at a publicly-funded medicine clinic. Clinic patients were selected for interview using a purposive sampling strategy designed to select typical cases of women seen in this setting. All interviews were anonymous and audiotaped. Patients were asked open-ended questions about selected items from the survey related to cardiovascular risk. Transcripts were independently reviewed by the researchers, who looked for interpretation of the survey questions, synonyms, and recurrent themes.
RESULTS: We interviewed 7 women, stopping when recurring themes emerged. The mean age was 53 years [range 36–71], and all had at least one risk factor for coronary heart disease. Participants had trouble interpreting questions about long-term consequences of disease and questions gauging behavior. All participants used the following synonyms: diabetes = sugar, hypertension = high blood pressure, menopause = change of life. Their definition of "heart disease" varied from a bacterial infection to hardening of the arteries. Three of the women could not list any risk factors for coronary artery disease; others mentioned smoking, overweight, and lack of exercise. Menopause, hypertension, and hypercholesterolemia were mentioned only one time in 7 interviews as a risk factor; no respondents reported age or diabetes as a risk factor. Stress/worry was the most commonly mentioned risk factor for all diseases discussed in the survey — mentioned 39 times by 6 respondents.
CONCLUSION: The synonyms used by patients suggest an understanding of certain disease processes as separate entities but not as contributors to heart disease. This indicates a significant deficit in patients' knowledge about heart disease and methods of prevention. The results of this pilot study will aid in developing better instruments for assessing the health status of low-income, urban black women related to cardiovascular disease. Furthermore, the results will assist planners in improving health education tailored to this population.

**SCRUTINIZING THE SPECULUM: CERVICAL CANCER SCREENING IN CHINESE WOMEN IN THE GENERAL MEDICAL CLINIC AT SAN FRANCISCO GENERAL HOSPITAL.** L. Shiue[1], C. Greene[1]; [1]University of California, San Francisco, CA *(Tracking ID #47832)*

BACKGROUND: 311 patients served by the General Medical Clinic (GMC) at San Francisco General Hospital (SFGH) are monolingual Cantonese speaking women. Only 49% of these women have received a pap smear in the last three years. This falls below the CDC National and California median rates of 85%. Little is known in the literature about the knowledge, attitudes and practices (KAP) of Chinese women regarding cervical cancer. Focus groups have been used with other minority populations to uncover cultural barriers, which have included modesty, language discordance and provider gender. This study identified ways to improve cervical cancer screening in monolingual Cantonese speaking women by: 1) defining health beliefs and practices unique to this population 2) understanding the KAP of cervical cancer screening in this group and 3) assessing their preferred sources of health education.
METHODS: Cantonese speaking medical assistants recruited eight Chinese-speaking women during routine clinic appointments to participate in two focus groups held in March, 2001. The investigators and three Cantonese-speaking research assistants facilitated the focus groups, which were audio-taped and then transcribed. The investigators analyzed the transcripts using thematic content analysis.
RESULTS: The data revealed five major themes. Chinese women 1) do not consider prevention but believe lifestyle promotes health 2) frequently use self-medication and receive health care from traditional Chinese providers 3) believe long waits and lack of Chinese educational materials are barriers to care 4) hold their physicians in high esteem 5) know very little about cervical cancer but are willing to have a pap test if offered. Modesty, language discordance and provider gender were not significant barriers to cervical cancer screening.
CONCLUSION: While Cantonese-speaking women's lack of knowledge of cervical cancer and prevention presents a barrier to screening, their health practices and beliefs, such as leading a healthy lifestyle, using traditional Chinese providers and holding physicians in high regard, could be used to promote screening. Ways to improve cervical cancer screening in Chinese women include 1) encouraging providers to offer cervical cancer screening more often to Chinese women and 2) partnering with traditional Chinese providers to promote screening and the concept of prevention.

**INFORMED DECISION MAKING: MYTH OR MISCONCEPTION?** M.J. Silveira[1], L. Rhodes[2], C. Feudtner[2]; [1]University of Michigan, Ann Arbor, MI; [2]University of Washington, Seattle, WA *(Tracking ID #46375)*

BACKGROUND: American society — with its deep cultural commitments to individual rights — has created a system where patients are compelled to participate in a range of medical decisions, from the mundane to life-altering. This system of informed decision making presumes that patients ought ideally to make decisions autonomously by weighing the benefits and burdens of treatment. However, studies have shown that patients do not want to be involved in medical decision making and that patient education does not consistently enhance decision-making. To better inform our views about medical decision making, we asked "How do patients make medical decisions?", specifically "How do elderly women make decisions about their healthcare?"
METHODS: Adopting a naturalistic perspective, we conducted in-depth interviews with 11 elderly women about past medical decisions and future wishes regarding life-sustaining treatment. Participants were recruited from multi-level retirement communities in Seattle by 5 nurses who purposely sampled to ensure study participants had prior personal experience making medical decisions. All subjects were screened to ensure adequate cognitive capacity. Each informant was interviewed twice by the principal investigator. Interviews were taped, transcribed, and reviewed by multiple readers.
RESULTS: Informants discussed a range of past medical decisions, from surgery and radiation for breast cancer, to intubation for COPD. Their stories portrayed decision making as a complex process that addresses multifaceted problems. While some informants made some decisions autonomously by weighing benefits and burdens, most preferred to share or delegate decision-making authority with others and use heuristics (i.e. "rules of thumb") to make decisions. Heuristics allowed informants to reduce the complex tasks of decision making into simple judgmental operations. Heuristics were most often used, not to decide upon specific treatments, but to determine who should make the treatment decision. This 'pretreatment decision' often took priority in the overall decision in informants' minds. Decision-making techniques varied, not only across informants, but also within informants with some changing their decision-making technique according to the dilemma at hand.
CONCLUSION: Our findings suggest that this population prefers to focus on broader issues that precede or underlie the treatment decision, especially regarding questions about who will make the decision, and uses heuristics often in medical decision-making. More generally, our findings suggest that decision-making is very complex. This group had diverse ways of making decisions, ways that differed within an individual, as well as across individuals. We need to recognize and facilitate these diverse approaches. Failure to do so may explain why surveys show patients desire information but prefer to play passive roles in decision-making. Moreover, it may explain why efforts to enhance patient decision-making through education have sometimes yielded lackluster results.

**"MAYBE IT WAS A LITTLE MONSTER": PERCEIVED CAUSATION OF DISEASE AMONGST CANCER PATIENTS.** N. Taylor[1], S. Zickmund[1]; [1]University of Iowa, Iowa City, IA *(Tracking ID #52421)*

BACKGROUND: Patients with chronic illnesses often seek explanations for their conditions, especially with diseases where the cause is uncertain, such as cancer. No previous study has examined the attitudes of US cancer patients toward the perceived cause of their disease.
METHODS: We enrolled patients undergoing cancer treatment in the inpatient and chemotherapy units at a large midwestern teaching hospital from January 1999 to October 2001. Exclusion criteria included incompetence, the inability to communicate, prisoner status, or being younger than age 18. Patients were asked the question: "Can you share anything specific that might have caused or helped cause your illness?" Patients also completed two health surveys: the Hospital Anxiety Depression Scale (HAD) and the Sickness Impact Profile (SIP). The interviews were transcribed verbatim and coded by a team of two trained coders, blinded to all identifying characteristics. The analysis was conducted using Atlas.ti, a qualitative software package.
RESULTS: A total of 314 patients (191 females and 123 males) were enrolled (average age = 55.9 years). Of the 314 participants, 63 (19%) attributed their disease to personal lifestyle or behavior, 57 (18%) mentioned a genetic predisposition, and 33 (10%) blamed their disease on environmental factors. The remaining 182 (53%) did not identify a probable or known cause for their cancer. Compared to other neoplasms, women with breast or ovarian cancer were significantly more likely to link their disease to a genetic predisposition ($p < 0.05$). Conversely, 16 (47%) patients with lung cancers blamed habits, primarily smoking, for their illness. Differences in perceived cause were not associated with anxiety or depression, as measured by the HAD, or a decrease in quality of life or worsened physical outcome, as measured by the SIP.
CONCLUSION: Using a large sample, these data show qualitatively that nearly half of the cancer patients identified a major contributing factor to the development of their disease. Interestingly, less than half of the patients with lung cancer attributed their disease to smoking. This points to the need to further educate the general public on disease prevention.

**THE EXPERIENCE OF SIGNING A DO NOT RESUSCITATE ORDER AS A SURROGATE: A PHENOMENOLOGICAL STUDY.** C.M. Handy[1], D.P. Sulmasy[1], C.K. Merkel[1], W.A. Ury[1]; [1]Saint Vincent Catholic Medical Centers of New York, New York, NY *(Tracking ID #51330)*

BACKGROUND: While under New York State law, Do Not Resuscitate (DNR) orders are typically signed by patients and families, little is known about the subjective experience of signing a DNR order as a surrogate. The goal of this study was to learn about the subjective and emotional experience of surrogates who sign a DNR order.
METHODS: A phenomenological research design was used. Surrogates of patients on the medical service were approached no earlier than 1 day, and no later than 7 days, after signing a DNR order. A phenomenological interview guide that included general prompts was utilized. Interviews were taped and transcribed. Two experienced qualitative researchers performed a phenomenological review of the transcripts that included extracting significant statements, examining them for clusters of themes, and validation of the themes. They met to discuss and re-code disagreements. Once 9 consecutive subject interview transcripts were reviewed, data saturation was reached.

RESULTS: The following major surrogate themes were found: 1) Signing a DNR is a process, not an isolated act, and the presence or absence of good quality communication and psychological support from health care personnel are amongst the most important determinants of its success. 2) The process of signing a DNR can raise many negative emotions including guilt, ambivalence, conflict, and feeling depressed. 3) Prior discussions, documents such as living wills, and consensus among family members make it easier to determine the patient's wishes and carry them out by signing the DNR. 4) The surrogates believed that signing a DNR is helpful in obtaining relief for a loved one's suffering, e.g., viewing it as a prerequisite to getting adequate opioid analgesia.
CONCLUSION: The experience of signing a DNR is a complex and emotional decision making process, that is affected by the presence or absence of evidence of the patient's prior wishes and support from health care personnel. It is disconcerting that these surrogates viewed DNR orders as a prerequisite to obtaining relief for a patient's pain or suffering.

**AT RISK AFRICAN AMERICAN MALES' PERCEPTIONS OF HIV TESTING.** E.E. Whitaker[1], R.A. Kee[1], S. Kendrick[2], D. Beete[3], K.L. Roberts[1], D.L. Gibson[1], L.S. Sadowski[1]; [1]Collaborative Research Unit, Cook County Hospital, Chicago, IL; [2]CORE Center, Cook County Hospital, Chicago, IL; [3]Chicago Department of Public Health, Chicago, IL *(Tracking ID #51683)*

BACKGROUND: HIV infection among African Americans is increasing at an alarming rate. Previous studies have suggested that African American males (AA males) who presented to STD clinics were less likely to get HIV tests and when tested less likely to return for test results than other populations. Moreover, AA males who declined HIV testing were 8× more likely to be HIV positive. The purpose of this study is to understand at risk AA males' perceptions of HIV testing in order to identify their concerns about testing and to develop interventions to increase AA males testing rates.
METHODS: Six focus groups (FG) and 60 semi-structured interviews (SI) were conducted with a convenience sample of AA males patients at two STD Clinics, one operated by Cook County Hospital and the other by the Chicago Department of Public Health. Each subject participated in two different qualitative methods, FG and SI, to capture differences that may arise between discussion of the topic of interest in group vs. individual contexts. Discussions were audio-taped, transcribed and subjected to content analysis by two researchers.
RESULTS: Themes that emerged include: 1) At risk AA males believe that getting HIV tested was important. 2) Motivators which prompt testing included physical symptoms (e.g. rashes), multiple sex partners, IV drug use, anal sex or being informed a partner tested HIV positive, 3) HIV positive celebrities like Magic Johnson are crucial to raising HIV awareness and the need for testing 4) Fear of knowing their HIV status led to a lack of HIV testing or returning for test results if tested. 5) Views were mixed on whether one could contract HIV from the testing process. 6) The meaning attributed to a positive test result ranged from being seen as a death sentence to being a manageable event with appropriate medication. 7) Participants generally believed that pre- and post-test counseling was useful in reinforcing knowledge of HIV risk factors as well as preventive behaviors though descriptions of their behaviors undermine this claim. The AA male participants were also amenable to various methods of testing including oral HIV testing, home and rapid tests though they believe that blood samples offered the most accurate results. Results were similar in both FG and SI qualitative methods despite which occurred first.
CONCLUSION: Though AA males believe HIV testing is important and are aware of proven HIV risk factors, barriers to testing persist. Myths such as contracting HIV from testing as well as fear of testing must be acknowledged and addressed. These results suggest culturally sensitive approaches are necessary to present the option of HIV testing to at risk AA males and may motivate them to get tested and to return for the results.

**A CONTENT ANALYSIS OF EMAIL COMMUNICATION BETWEEN PATIENTS AND THEIR PROVIDERS.** C.B. White[1], D.T. Stern[1], C. Moyer[1], D.T. Cox[1], S.J. Katz[1]; [1]University of Michigan, Ann Arbor, MI *(Tracking ID #51845)*

BACKGROUND: Though electronic mail has changed the way most of us communicate and conduct business on a daily basis, penetration into clinical medicine has been slow. One concern among providers is that patient-initiated messages may include content such as complicated multiple requests, highly sensitive information, or non-medical issues. To evaluate these concerns, we performed a content analysis of a random sample of messages from patients to providers using a triage-based email system.
METHODS: We performed a randomized controlled trial of a triage-based e-mail system in two large academic primary care centers involving 24 clinical faculty and 74 residents. Patients of "control physicians" were not given access to the system. Patients of "study physicians" were encouraged to communicate with physicians and staff via the email system about scheduling, billing, health issues, prescription renewals, and referrals. Patients were asked to send separate messages for each type of request and to avoid using e-mail to communicate about particularly sensitive topics. A total of 1,629 messages from consenting patients to their physicians were collected from June 2000 to July 2001; 359 of those messages were randomly selected for review. Message categories were defined by two of the investigators, and coding proceeded after reliability of >90% was achieved.
RESULTS: In 78.3% of the messages, patients asked or provided a single type of question or information [physician information update (27.3%), prescriptions (17.5%), referrals (10%), physician health questions (8.6%), tests (5%), other (9.9%)]. Considering both single and multiple requests in a single message, physician information update comprised 42.1% of all messages. Most patients (93%) made reference to only one condition in an email, although one had an update and questions about five different conditions. One patient sent her physician instructions about "What to do if you lose your wallet."
CONCLUSION: A triage based email system promoted email exchanges between patients and providers that were appropriate for a primary care setting. Patients substantially complied with our request to limit each e-mail to one type of question. Only a few messages could be considered inappropriate or irrelevant to clinical practice. Open coding of the data revealed an unanticipated and highly utilized category: physician information update. Analysis of physician and staff responses is under investigation, and will further inform us on the degree to which these messages required physician response.

**CONFLICTS AND CONTRADICTIONS: GENERALISTS PERSPECTIVES ON THE CARE OF SERIOUSLY ILL ELDERLY PATIENTS.** G.S. Winzelberg[1], D.L. Patrick[1], L.A. Rhodes[1], R.A. Deyo[1]; [1]University of Washington, Seattle, WA *(Tracking ID #52050)*

BACKGROUND: Caring for elderly patients presents many challenges for physicians; some of the most difficult involve decisions related to the timing of end-of-life care. Prior research demonstrates that physicians more often recommend withdrawal of aggressive treatments and use of comfort care for the elderly, independent of their prognoses and preferences. The factors underlying these age-based care differences are uncertain. This study seeks to understand how generalist physicians experience the care of their elderly patients during episodes of serious illness.
METHODS: Interviews were conducted with thirteen community-based general internists and family physicians from Washington State who estimated that at least one-third of their patients were elderly, defined as age > 65 years. Subjects were identified using informants, searches of medical practice websites for physicians expressing an interest in geriatrics, and snowball sampling. The interviews were semistructured and included probes intended to elicit narratives involving elderly patients with memorable health care decisions. Each interview lasted approximately sixty minutes, and was audiotaped and transcribed. The transcripts were then coded and analyzed for themes.
RESULTS: Four themes emerged that are relevant to the subjects' interactions with elderly patients, and the timing of end-of-life care. (1) Contradictions existed between physicians' desired care approach and the treatment received by individual patients. These inconsistencies reflected complexities of decision-making involving elderly patients, and were not necessarily recognized by the physicians themselves. (2) Subjects had an "internal gauge" that guided treatment decisions. Generally based on personal or professional values, this gauge varied in its flexibility among individual subjects. (3) Physicians identified external and internal conflicts resulting from different expectations of how seriously ill elderly patients should be treated. Disparate goals of care were a source of conflict between physicians and patients' families, or among family members. The physicians described internal struggles when surrogates' care preferences varied from their own. (4) Physicians recognized that family members had difficulty taking responsibility for decisions regarding the dying process, and with increased experience in caring for seriously ill older patients they became more willing to make decisions for patients.
CONCLUSION: These physicians rarely used a shared decision-making approach given families' desire not to feel responsible for a patient's death. With experience the physicians took a more active role in their elderly patients' health care decisions, thereby facilitating the transition to end-of-life care. Their care was influenced by personal and professional beliefs that often are not discussed with patients or surrogates. Recognition and acknowledgment of these beliefs could improve communication and result in care more consistent with patient preferences.

**RACIAL DIFFERENCES IN ATTITUDES REGARDING CARDIOVASCULAR DISEASE PREVENTION AND TREATMENT: A QUALITATIVE STUDY.** L.D. Woodard[1], M.T. Hernandez[1], L.A. Petersen[1]; [1]Baylor College of Medicine and Houston VAMC, Houston, TX *(Tracking ID #51524)*

BACKGROUND: African Americans (AA) have worse coronary heart disease (CHD) outcomes than whites. We explored the health care experiences and beliefs of AAs and white patients regarding CHD prevention and treatment to elicit potential causes of racial disparity in CHD outcomes.
METHODS: We conducted four focus groups (2 AA, 2 white) of patients with known CHD. A moderator led the discussion using open-ended questions followed by probes. Using grounded theory, verbatim transcripts of the groups were analyzed qualitatively by independent investigators to identify key issues and themes.
RESULTS: We identified four themes from focus group sessions: risk factor knowledge, physician-patient relationship, medical system access, and treatment beliefs. AA and white participants displayed similar knowledge of CHD risk factors and prevention. However, AA groups demonstrated less specific knowledge about cholesterol as a risk factor, as demonstrated by the comment: "…they will tell you the high and the low or the good and the bad and to tell you the truth, the average patient don't even know the difference and that's kind of confusing." Both AA and white participants identified stress as a risk factor for heart disease, with two AA participants highlighting stress due to racism. While there were no racial differences in what patients considered integral to good physician-patient communication, participants in the white groups reported being more assertive during encounters with their physicians. One patient stated "…you tell a doctor, you know, inform them what's going on so they best know how to treat the symptom." Alternatively, an AA group member described asking his physician about cholesterol with this statement, "…you don't know, but I had them try to explain it to me, and I still didn't know. So, what can you do?" All patients expressed difficulty accessing the health care system. White participants expressed concern that their limited financial resources were correlated with poor quality care. "Any time you're paying money, you're going to get a better hospital than when you're not paying money." AA group members worried that generic medications were not as effective as brand name medications and noted that home remedies were useful. "…From what I can understand, generic is not quite as strong…" and "…if you were to have a heart attack and you're taking this medicine that I'm taking now, I don't think it would act as fast."
CONCLUSION: We identified four themes from focus group discussions. Racial differences were apparent in the experience of racism as a stress, knowledge of specifics of CHD risk factors, and assertiveness in the physician-patient relationship. This study suggests that understanding patients' experiences and beliefs regarding the healthcare system can provide clues to improving the delivery of care to vulnerable patients, such as racial minorities.

**PRESCRIPTION DRUG POLICY IN OREGON.** J.T. Zerzan[1]; [1]Oregon Health Sciences University, Portland, OR *(Tracking ID #52350)*

BACKGROUND: This project was designed to obtain information about the knowledge base and opinions of Oregon legislators regarding pharmaceutical policy. In particular, possible funding mechanisms for Oregon Health Plan prescription drug benefits was examined. A secondary objective was to find ways health professionals could contribute to policy making.
METHODS: Interviews were conducted with a representative sample of thirty-seven Oregon state legislators.
RESULTS: The majority of legislators see health care as among the top three issues on the current legislative agenda. Most legislators get their health information from publications and lobbyists, but those who personally know a health professional value their opinions. Most approve of the Oregon Health Plan but worry about sustainability and funding, particularly in the area of prescription drug coverage. 52% approve of formularies and 18% are opposed with most concern revolving around research and development, and physician autonomy. There are mixed views about drug rebates, bulk purchasing, co-pays, and preferred pharmacies. The bulk of legislators feel they need more education on these issues.
CONCLUSION: Health care is an important legislative issue and health professionals can have an impact by providing educational information and expressing opinions. Pharmaceutical coverage is expensive, and there are mixed views on how to structure and fund a prescription drug benefit. At the end of the session this year, a formulary bill for the Oregon Health Plan was passed as an initial attempt to address this issue. The coming years will show the impact of this bill.

# WOMEN'S HEALTH

**INFLUENCES ON PATIENT PERCEPTIONS OF PRIMARY CARE IN WOMEN VETERANS.** B.A. Bean-Mayberry[1], C.H. Chang[2], M.A. Mcneil[2], P.M. Hayes[1], S.H. Scholle[2]; [1]VA Center for Health Equity Research and Promotion, VA Pittsburgh Healthcare System, Pittsburgh, PA; [2]University of Pittsburgh, Pittsburgh, PA *(Tracking ID #50743)*

BACKGROUND: Prior studies have considered provider gender or clinic type as predictors of patient satisfaction or primary care quality. None have also included gender-specific services from a regular provider as a variable for satisfaction or primary care quality. We compared patient perceptions of primary care quality among women veterans treated in both women's clinics and traditional medicine clinics in 10 sites within one region of the Veteran's Administration (VA). We considered three provider characteristics: gender of provider, provider location in a women's clinic, and provider coverage of routine gynecological care as predictors of primary care quality.
METHODS: An anonymous survey was mailed to a random sample of women veterans stratified by site and clinic type. To measure quality of care by patient perspective, we used the original 19-item Components of Primary Care Index (CPCI) developed and validated previously (Flocke 1997). This tool addresses four domains of primary care delivery: patient preference for provider; interpersonal communication; accumulated knowledge; and coordination of care. Patients rate each item on a 6-point Likert scale from strongly disagree to strongly agree. Persons with strongly agree on all items in a domain were considered to have a perfect score. Because data were skewed, we used logistic regression to model the probability of a perfect score within each domain. We examined the data for the effect of the 3 independent variables above on the patient's primary care scores.
RESULTS: Overall response rate was 61% (Total N = 1321/2161). In the multivariate regression models, gynecological care by the primary care provider was significant for patient preference for a provider (OR 2.6, 95% CI 1.5, 4.7, p = 0.001). Gynecological care by provider had borderline significance for better communication (OR 1.6, 95% CI 0.96, 2.6, p = 0.070). Female provider was significant for better coordination of care (OR 2.0, 95% CI 1.1, 3.6, p = .020). However, provider location within a women's clinic did not have any effect on perceptions of primary care quality separate from provider gender or gynecological services in any of the regression models.
CONCLUSION: Both provider gender and gynecological care by the primary care provider had a positive effect on patient perceptions of quality of care. Current primary care instruments may be limited because they do not assess gender-specific services or aspects of care. Incorporation of these items may be beneficial in determining whether care-specific measures impact perceptions of quality by female patients.

**ACTUAL VERSUS PERCEIVED RISK OF CONTRACTING HIV AMONG OLDER URBAN WOMEN.** L. Bernstein[1], G.M. Corbie-Smith[2], D. St. George[3], S. Henderson[1], J.P. Doyle[1]; [1]Emory University, Atlanta, GA; [2]University of North Carolina at Chapel Hill, Chapel Hill, NC; [3]Walden University, Mineapolis, MN *(Tracking ID #51979)*

BACKGROUND: Older women have been overlooked in HIV/AIDS research; thus, little is known about their risk behaviors or risk perception regarding HIV. We sought to determine the level of risk of contracting HIV among older urban women and the relationship between their perceived risk and actual risk of contracting the disease.
METHODS: Women aged 50 and older presenting to an urban, public facility for routine care were asked to participate in a survey about women's health issues. Informed consent was obtained and trained research assistants administered a questionnaire in a face-to-face interview. Women were identified as high, moderate, or low risk for contracting HIV based on sexual history, prior drug use, and exposure to infected fluids including donated sperm and blood products. Respondents were also classified according to their perceived risk (high, moderate or low) of personally contracting the virus.
RESULTS: Results from 238 women aged 50 and older were available for analysis. Of those women providing sufficient data with which to identify their actual HIV risk (n = 181), 37% were at low risk, 33.1% were at moderate risk, and 29.8% were at high risk of contracting HIV. Nevertheless, the majority of women (93.4%) believed themselves to be at low risk, with only 2.6% and 3.9% considering themselves to be at moderate or high risk, respectively, for contracting the disease. Bivariate analyses showed that women's perception of being at moderate/high risk for HIV was unrelated to race, employment status, religious affiliation, degree of spirituality, and sexual orientation, but was related to marital status (p = 0.04) and education (p = 0.03). Women who had never been married and those with higher educational attainment were more likely to perceive themselves as being at moderate/high risk for HIV than those who had ever been married or those with less education. In a multivariate logistic regression model, women at higher risk for HIV were as likely to perceive themselves at low risk as lower-risk women (OR = 0.9; p = 0.8).
CONCLUSION: In our study of older women in a public hospital primary care clinic, HIV risk perception was not related to actual risk of contracting HIV. Over half of these women were at moderate or high risk for contracting HIV, yet most of them perceived themselves to be at low risk. Focused HIV research and education is warranted in this previously overlooked population.

**FREQUENT SCREENING FAILS TO IDENTIFY VICTIMS OF ABUSE.** R.A. Buranosky[1], B.H. Hanusa[1], K.A. Dowd[1], B. Valappil[1], L. Ranieri[1], S.H. Scholle[1]; [1]University of Pittsburgh, Pittsburgh, PA *(Tracking ID #52100)*

BACKGROUND: Intimate partner abuse (IPA) affects 5 – 22% of women seen in primary care settings and routine screening of all adult females is recommended by advocacy and medical organizations such as the Family Violence Prevention Fund, the American Medical Association, and the American College of Obstetrics and Gynecology. Studies have shown that identification rates fall below prevalence rates, which may be due to either lack of screening, failure of disclosure, or both. No prior study has examined the implementation of routine screening procedures outside of a research intervention protocol. The purpose of this study was to examine the frequency of screening documentation and of disclosure of abuse in an outpatient obstetrics and gynecology clinic with mandated IPA screening procedures.
METHODS: Magee Womens Hospital is a Center of Excellence in Women's Health that is nationally known for its promotion of IPA screening. All healthcare providers participate in annual IPA educational programs and are expected to routinely ask about and document the occurrence of IPA. IPA prompt questions are found on all standardized assessment forms used in the outpatient obstetric and gynecology clinic. Charts from all patients seen during the week of March 6 – 10, 2000, were reviewed for documentation of screening for and detection of IPV. A standardized chart review form was used to record characteristics of the patients as well as discussion and identification of IPA. IPA discussion was recorded as "yes" if IPA was documented in the chart as positive or negative.
RESULTS: Of the 469 clinic patients who attended 473 appointments, 418 charts were reviewed (45 could not be located, 6 were seen only for a research protocol). Of these, 26 were excluded as the presence of the partner at the visit precluded screening. The analyses focused on 392 patients with 733 forms (some visits generated multiple forms). Over half of the women were seen for prenatal care (50.5%) with the rest seen for family planning (20.1%), gynecology (16.3%), and colposcopy visits (7.2%). Women were young, publicly insured, and evenly split between African-American and whites. Overall, nearly 75% of the women had documentation that IPV was discussed in the visit. Only 9 of the 392 (2.3%) women had positive documentation of abuse, with the rate being higher for prenatal patients (7/198, 3.5%) than for gynecologic patients (2/194, 1.0%).
CONCLUSION: Magee Womens Hospital with mandated screening provided a unique opportunity to determine whether low identification of IPA is related to screening or to disclosure. Healthcare providers are screening frequently; however, the rate of documented IPV is low. Further research is needed to improve primary care approaches to IPV and to understand women's reluctance to disclose.

**COMPARISON OF EMERGENCY CONTRACEPTION PRESCRIBING PRACTICES BETWEEN INTERNAL MEDICINE AND OTHER SPECIALTIES.** C.H. Chuang[1], L. Waldman[1], K.M. Freund[1]; [1]Boston University Medical Center, Boston, MA *(Tracking ID #50165)*

BACKGROUND: Previous studies of emergency contraception prescribing practices have included Obstetrician Gynecologists and Family Practitioners, but not Internists. We examined how the prescribing practices of Internal Medicine physicians compared with these other physicians.
METHODS: A 29-item survey was mailed to a randomly selected sample of 600 licensed generalists in Massachusetts evenly divided between Internists, Family Practitioners, and Gynecologists. Questions assessed physician demographics and their practices in reproductive health, including prescribing frequencies of emergency contraceptive pills. Bivariate and multivariate analyses were conducted to identify characteristics of physicians who have ever prescribed emergency contraceptive pills.
RESULTS: Of the 512 physicians who met eligibility requirements, 300 (59%) responded. The respondents were 31% Internists, 34% Family Practitioners, and 35% Gynecologists. In the bivariate analysis, Internists were less likely (63%) than Family Practitioners (76%) and Gynecologists (94%) to have ever prescribed emergency contraceptive pills ($p < 0.0001$). Other significant predictors for having ever prescribed emergency contraceptive pills were female gender (94% vs. 70% of male physicians, $p < 0.0001$), non-Catholic religion (82% vs. 68% of Catholics, p = 0.01), and providing contraception for more than 50% of female patients (91% vs. 63% of those providing contraception for 50% or less of female patients, $p < 0.0001$). In the multivariate analysis, Internists (adjusted OR = 0.13, 95% CI 0.04 – 0.36) and Family Practitioners (adjusted OR = 0.28, 95% CI 0.10 – 0.78) were still significantly less likely to have ever prescribed emergency contraceptive pills than Gynecologists. Female gender, non-Catholic religion, and providing contraception for more than 50% of female patients also remained significant in the model.
CONCLUSION: After controlling for other predictors, Internists were much less likely to have ever prescribed emergency contraceptive pills. Efforts to increase awareness and knowledge of emergency contraception should be aimed at Internal Medicine physicians.

**ARE WOMEN WITH MEDICAL PROBLEMS RECEIVING PRECONCEPTION COUNSELING?**
C.A. Deyoung[1], J.A. Starr[2], V.K. Chetty[1], R.O. Powrie[2], A. Lateef[3]; [1]Boston University School of Medicine, Boston, MA; [2]Women & Infants Hospital, Providence, RI; [3]Rhode Island Hospital, Providence, RI *(Tracking ID #50716)*

BACKGROUND: Healthy People 2010 recommends preconception counseling (PC), but few data describe whether women with medical problems receive PC. We attempted to characterize the frequency of reported PC among women with medical problems and to determine the provider specialty most likely to offer such care.
METHODS: Eighty-eight women in a high-risk prenatal clinic at a tertiary care maternity center completed a self-administered survey (93% response rate). Eligibility criteria included women with at least one of the following medical conditions: diabetes mellitus, hypertension, cardiac disease, thyroid disease, rheumatologic disorder, asthma, or seizure disorder. The percent of women who reported receiving PC was determined as well as the specialty of the physician who provided it (primary care provider, ob-gyn, or specialist). Logistic regression was used to determine differences between women who received PC and those who did not.
RESULTS: Of the 88 respondents, 36 had diabetes; 23 asthma; 11 hypertension; 9 cardiac disease; 9 seizure disorder; 9 thyroid disease; and 8 rheumatologic disorders. The majority of the women (82%) were between ages 20 and 39. Forty-five percent of the women reported discussing with a physician the impact their medical condition would have on a future pregnancy. Fifty-five percent reported having ever talked to a physician about the fetal effects of their medications. Nineteen percent reported being advised not to become pregnant because of their medical condition. Of the women who reported receiving PC, the primary care provider, ob-gyn, and specialist provided this care with equal frequency. Thirty seven percent rated the overall quality of PC as either inadequate or unsatisfactory. No difference was found between the quality of PC delivered and the provider type. Logistic regression showed no difference in insurance status, type of medical condition, parity, or age between the women who received PC and those who did not.
CONCLUSION: In this study of women with medical problems, who could clearly benefit from PC, 55% reported not receiving such care before pregnancy and 45% did not receive PC regarding medication use. No difference was found in PC delivery between the three provider types. These findings suggest the need for efforts to improve PC delivery in women with medical problems.

**AN ASSESSMENT OF A BRIEF SCREENING TOOL FOR DOMESTIC VIOLENCE IN AN URBAN PRIMARY CARE POPULATION.**
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BACKGROUND: The prevalence of domestic violence has been measured in multiple medical settings, but has not been studied well in the urban general medicine population, specifically with predominately Hispanic and African American middle-aged women. Physicians rarely screen women for domestic violence, often citing the time required to perform the screening questionnaires as a limiting factor. This study had two main objectives (1) to determine the prevalence of current domestic violence in a Hispanic and African American population and (2) to evaluate the performance characteristics of the Partner Violence Screen (PVS), a brief screening tool for current domestic violence in this population.
METHODS: Two questionnaires were administered in English or Spanish, to 305 randomly selected women attending an inner-city general medicine practice. The Partner Violence Screen (PVS), a 3-item questionnaire, has previously been validated in an Emergency Department population.The Index of Spouse Abuse (ISA), a broadly validated 30-item questionnaire that has physical and non-physical components, was used as the reference standard. The prevalence of current domestic violence within the last 12 months was measured using the ISA, and the accuracy of the PVS for current domestic violence was measured.
RESULTS: The participants ranged in age from 21-85 years, with a median of 52 years. The ethnic breakdown of the population was 43% Hispanic, 41% African American, and 11% Caucasian. The prevalence of current physical and non-physical abuse was 6.3% (95% Confidence Interval (CI) 3.1 – 11.3%) and 5.1% (95% CI 2.2 – 9.7%) respectively. The sensitivity of the PVS was 33.3% (95% CI 9.9-65.1%) and the specificity was 91.8% (95% CI 86.1-95.7%). Current domestic violence was associated with a self-perception of poorer emotional and physical health [OR 10.7 (95% CI 1.8 – 65.0)] and a history of having a partner with a substance abuse problem [OR 7.4 (95% CI 1.4 – 40.1)].
CONCLUSION: In this cross-sectional analysis of a predominately Hispanic and African American population, the women were on average older than participants in previous studies. Current domestic violence was associated with a self-perception of poorer emotional and physical health and a history of a partner with a substance abuse problem. The prevalence of current domestic violence in our general medicine population was 6.3%. The PVS is highly specific, but not sensitive when used in a multi-racial and multi-ethnic general medicine population to assess current domestic violence. The PVS may not be an appropriate screening tool in this population.

**BURDEN OF MEDICAL ILLNESS IN WOMEN WITH POST-TRAUMATIC STRESS DISORDER.**
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BACKGROUND: Concerns have been raised about whether the medical problems of women with mental illness receive adequate attention. Since avoidance and interpersonal difficulties are common in post-traumatic stress disorder (PTSD), it may be a challenge for women with PTSD to navigate the health care system. PTSD is particularly prevalent among women veterans, so we characterized the burden of medical illness in women veterans with PTSD who receive VA care.
METHODS: Data came from the 1999 Large Survey of Veterans that was designed to assess the functional status of a random sample of VA enrollees. Women were considered to have PTSD if a doctor had ever told them that they had PTSD; women had "no mental health condition" (no MHC) if a doctor had never told them that they had PTSD, depression or schizophrenia. Women were considered to have any of 11 chronic medical conditions based upon self-reported history or, in the case of obesity, based upon self-reported height and weight. Health status was determined from the Physical Component Summary (PCS) of the validated SF-36V instrument, scaled from 0-100 (100 is best).
RESULTS: The most common serious medical conditions reported by women with PTSD were arthritis (60.6%), chronic low back pain (59.1%), coronary artery disease (37.7%), obesity (35.2%), hypertension (34.6%), diabetes (13.2%) and cancer (10.4%). Women with PTSD suffered from more medical conditions than women with no MHC (mean 2.5 versus 2.1, $p < .001$). In age-stratified analyses, PCS score was lower for women with PTSD than for those with no MHC, particularly among women less than 65 years of age (see Table) ($p < .001$ for all comparisons).
CONCLUSION: The presence of PTSD is associated with an excess burden of medical illness, especially in women less than 65 years old. Systems of care should be designed to assure that women with PTSD have good access not only to mental health care but also to medical care. Disease complexity in this population may make it necessary to apply more resources to their care.

**PCS (mean, SD) for Women with PTSD versus No MHC**

| | No MHC N = 18,949 | PTSD N = 4,816 |
|---|---|---|
| Age <45 (N = 9,709) | 43.2 (12.4) | 37.1 (11.8) |
| Age 45 – 64 (N = 7,608) | 40.4 (13.1) | 33.6 (11.3) |
| Age 65+ (N = 6,448) | 35.2 (12.4) | 30.2 (10.1) |

**TREATMENT OF WOMEN AND MEN IN CHEST PAIN.**
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BACKGROUND: In previous studies, women presenting to the emergency department with chest pain were less likely to receive recommended standard of care (Sheifer et al, Am Heart J 2000;139:848 – 57). We undertook to see if there has been a change in the care of women with coronary disease given the increased emphasis on women and coronary disease in resident education.
METHODS: A retrospective chart review of all patients who presented to the Emergency Department of a community-based hospital during February 2000 was conducted. Charts were reviewed for age, sex, quality of pain, risk factors, admission rates, treatment, and type of testing ordered. Chi square was used to test significance with a $p \leq 0.05$ accepted as significant.
RESULTS: The sample consisted of 199 patients seen for non-traumatic chest pain with a similar proportion of men (51%) and women (48%) and similar mean ages for males (50) and females (51). There was no difference between the admission rates of men (36.8%) and women (35.4%). However, admitted men were more likely to be admitted to the CCU (28.9% vs. 5.7%, $p < 0.05$) and placed on a nitroglycerin drip (21.1% vs. 2.9%, $p < 0.05$). For men and women administration rates were similar for aspirin (37.9% vs 33.3%) and beta-blockers (6.8% vs 5.1%). The frequency of cardiac stress testing in males (15.5%) was similar to that of females (21.6%).
CONCLUSION: Cardiovascular disease is the leading cause of mortality in both men and women (AHA 2000 Heart and Stroke Statistical Update). As opposed to previous studies (Sheifer et al, 2000), we found little difference in the presentation and evaluation of men and women. While hospital admission rates and stress testing rates were comparable between the two groups, the male patients were more likely to be admitted to the CCU and started on a nitroglycerin drip. We suggest that there has been improvement in the treatment of women presenting with chest pain.

**CAN WE IMPROVE PRIMARY CARE FOR WOMEN? A TRAINING PROGRAM FOR GYNECOLOGY PROVIDERS IMPROVED SKILLS AND CONFIDENCE.**
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BACKGROUND: Many women get all their health care from gynecology (GYN) providers who are not trained to provide primary care (PC). We evaluated the impact of a cross-disciplinary curriculum in PC medicine for a GYN Department (physicians and Nurse Practitioners) at an inner city community health center.
METHODS: Curriculum: We designed and implemented a 9-months, 100-hour, curriculum to expand the providers' scope of practice. This collaborative course between PC and GYN Departments met each week to review the diagnosis and management of common PC problems using lectures, clinical experiences and self-study activities.
Evaluation: We administered a 6-station Objective Structured Clinical Exam (OSCE) before and after the course. Standardized patients (SP) were trained to portray patients with common PC problems (asthma, smoking cessation, diabetes, depression, somatization, upper respiratory infections, hypertension, dietary counselling) and to complete an evaluation form covering skills and patient satisfaction. The skills checklists consisted of 6-10 items. Patient satisfaction was measured via the ABIM10 (a 10-item scale), and a single question about the SP's comfort with the clinician as a PC provider. After the course, participants completed a retrospective survey of comfort with 25 PC content areas.
RESULTS: Six GYN providers completed the entire course and evaluation. Compared to pre-course scores, skills on the OSCE improved after the course from 57% to 72% done (15% difference, 95% CI = 2.1, 27.9, $p = .03$). The mean score on the ABIM10 patient satisfaction scale (range 1 – 5) improved from 2.7 to 3.1 (0.4 difference, 95% CI = 0.2, 0.6, $p = 0.008$). There was no pre-post course difference in SP comfort with the GYN providers. Participants' mean self-assessed comfort with 25 PC topics rose from 4.9 to 6.2 (1.3 difference, $p = 0.004$) on an 8-point scale.
CONCLUSION: An intensive curriculum in PC increased GYN provider's comfort in practicing PC and improved their performance across a broad range of clinical problems. Such

cross-training programs can have a significant impact on the PC of those women who get all their health care from GYN providers.

**DOMESTIC VIOLENCE — A CURRICULUM DEVELOPMENT.**

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BACKGROUND: Domestic violence (DV) is an under-recognized cause of physical and emotional injury among women and children. Many physicians feel ill prepared to discuss DV with patients. To assess knowledge and attitudes and increase physician comfort with DV, we developed, implemented, and evaluated a curriculum for pre-clinical medical students.
METHODS: A telephone survey of over 75 medical schools revealed 5 schools with identified curricula available for review. We designed a student initiated 2-hour portion of the 2nd year reproductive-endocrinology block that combined a 1-hour didactic lecture with a 1-hour panel discussion. The didactic portion emphasized the consequences of DV. The panel, consisting of a DV survivor, a legal advocate and an emergency department physician, was designed to personalize the problem. Study participants were asked to anonymously complete: 1) baseline demographic data and pre and post intervention 1) knowledge based questions (15 original true-false questions) and 2) attitudinal assessment (the "Inventory of Beliefs about Wife Beating" developed by Saunders, D.G.) scored on a Likard scale from 1 – 7.
RESULTS: Of the 72 people in the UNM-SOM class of 1999, 55 completed both assessments (57.7% of men and 87% of women). Participants were lost due to absence, failure to use the identifier, or declining to participate. Thirty-seven percent of respondents had prior personal (family, friend, or self) experience with DV and 29.1% had professional experience. Scores on knowledge testing improved post intervention (68% to 79%, $p < 0.001$). Knowledge in men did not improve ($p = 0.501$) while in women, it improved significantly ($p < 0.001$). Of the 5 sub-scales in the "Inventory of Beliefs about Wife Beating", two showed increasing compassion toward the abused spouse ("Wife gains from beating" −1.52, $p < 0.001$ and "Offender is responsible" +0.962, $p = 0.022$). In men, the results were more dramatic and a third sub-scale also showed increasing support towards the victim ("Wife gains from beating" −3.357, $p = 0.006$, "Offender is responsible" +1.846, $p = 0.007$ "Help should be given" +3.143, $p = 0.003$).
CONCLUSION: A brief structured curriculum consisting of a didactic component and panel discussion can improve knowledge and change attitudes favorably toward survivors of DV. This shift in attitudes is especially compelling given the short duration of intervention and that it is more pronounced in men. This gender difference should be explored further in future work and may relate to differences in baseline attitudes and awareness. Further work may determine whether intervention at this career stage affects future practice patterns.

**RISK OF TYPE 2 DIABETES ASSOCIATED WITH GESTATIONAL DIABETES: A SYSTEMATIC LITERATURE REVIEW.**

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BACKGROUND: Gestational diabetes mellitus (GDM), or impaired glucose intolerance first diagnosed during pregnancy, is a risk factor for type 2 diabetes (DM) in the mother. The magnitude of the reported risk varies widely; it is unclear how much of the variation is explained by variations in population selection criteria, length of follow-up, and tests for GDM and DM. Understanding the basis of differences in risk could affect screening protocols for DM and assist in identifying women with GDM who may be candidates for studies of preventive interventions for DM.
METHODS: We conducted a systematic literature review of articles published between January 1963 and August 2001, in which subjects underwent testing for GDM and testing for DM after delivery. Studies which did not use oral glucose tolerance tests during pregnancy were excluded. We abstracted study design, ethnicity, diagnostic criteria for GDM and DM, cumulative incidence of DM, and other factors which predicted incidence of DM.
RESULTS: We examined 28 studies. Following the index pregnancy, the cumulative incidence of DM ranged from 2.6% to over 70% in studies which examined women 6 weeks postpartum to 28 years postpartum. Differences in rates of progression between ethnic groups was reduced by adjustment for varying lengths of follow-up and testing rates, so that women of different ethnicities appeared to progress to DM at similar rates after a diagnosis of GDM. Cumulative incidence of DM increased markedly in the 1st 5 years after delivery, and appeared to plateau after 10 years. Elevated fasting glucose level during pregnancy was the risk factor most commonly associated with future risk of DM, whereas the predictive value of demographic and anthropometric risk factors was inconsistent or poor.
CONCLUSION: Conversion of GDM to DM seems largely determined by the length of follow-up and cohort retention after delivery. Adjusting for these differences reveals a striking similarity between studies, with rapid increases in cumulative incidence occurring in the first 5 years after delivery. Targeting women with elevated fasting glucoses and those further out from delivery for DM screening and intervention may prove to have greatest benefit for the effort required.

**PREGNANCY-INDUCED HYPERTENSION AND RISK OF FUTURE CARDIOVASCULAR DISEASE IN THE MOTHER.**

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BACKGROUND: Syndromes of pregnancy-induced hypertension, including transient hypertension of pregnancy, pre-eclampsia, and eclampsia, may result in maternal vascular damage which persists after delivery. Although several studies have reported an association between future cardiovascular disease in the mother and pregnancy-induced hypertension, it is unclear what the strength of the association is, and if it is mediated through conventional cardiovascular risk factors.
METHODS: We conducted a systematic literature review of articles published between January 1963 and August 2001, which examined the incidence of cardiovascular disease in women with a syndrome of pregnancy-induced hypertension. We abstracted study design, ethnicity, diagnostic criteria for the particular syndrome, diagnostic criteria for the cardiovascular event, and the other cardiovascular risk factors which were examined.
RESULTS: Of 788 studies obtained from the initial search, only 13 examined incidence of cardiovascular disease or cardiovascular risk factors in the mother after delivery rather than peripartum outcomes. Definitions of pregnancy-induced hypertension varied widely. Population-based studies were conducted only outside the United States, particularly in England, Norway, and Iceland. Seven studies examined the incidence of chronic hypertension and 6 studies examined incidence of cardiovascular disease as diagnosed by endothelial function, hospitalization for acute myocardial infarction, or death certificate data. Relative risks for chronic hypertension were slight but significant (1.5 – 2.4). Relative risks for ischemic heart disease were also slight but significant and persisted after controlling for other cardiovascular risk factors (1.1 – 2.2). Risk increased with earlier onset of the syndrome, African-American race, and repeat episodes of a pregnancy-induced hypertension syndrome. Women with pregnancy-induced hypertension were at higher risk than nulliparous women, who were at higher risk than women with healthy pregnancies.
CONCLUSION: Syndromes of pregnancy-induced hypertension may be associated with future elevations in cardiovascular risk. Further investigation of long-term maternal outcomes after disorders of pregnancy need to be conducted to confirm these findings, but these disorders may identify women who would benefit from early intervention.

**DO DIFFERENCES IN QUALITY OF LIFE EXIST BETWEEN MEN AND WOMEN WITH NON-GENDER-SPECIFIC CANCERS?**

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BACKGROUND: The treatment of malignant diseases constitutes an important physical and emotional burden. Several investigators have concluded that women diagnosed with cancer experience significantly more stressors than men. However, inconsistencies have caused these results to remain inconclusive. We hypothesize that the psychosocial impact of cancer is greater on women than men.
METHODS: Patients in inpatient and chemotherapy units at a large tertiary referral center between January 1999 and July 2001 were eligible to enroll. A trained interviewer approached patients who were competent and over the age of 18. After providing demographic information, patients participated in a semi-structured interview which assessed their (1) state of health, (2) quality of life, (3) social support, (4) emotional stability, (5) outlook on treatment progress, (6) view of self, and (7) coping style. Patients completed two questionnaires, the Sickness Impact Profile (SIP) and the Hospital Anxiety Depression Scale (HAD). Interviews were transcribed verbatim and analyzed by a team of two blinded coders. The seven themes (above) were rated on a Likert scale using ATLAS.ti, a qualitative analysis software package. To minimize confounding factors patients with gender-specific forms of cancer (of the breast or the genitals) were excluded. Statistical analyses were performed using SAS software.
RESULTS: 303 patients (137 women; mean age 56.4 years) with known malignancies were enrolled. The most common diagnoses were gastrointestinal cancer (26%), lymphoma (15%), and lung cancer (15%). Men and women did not vary significantly by education, ethnicity, area of residence, inpatient/outpatient status, or by cancer type. Qualitatively, no significant differences emerged in the intensity or the frequency of the 7 above qualitative themes. Quantitatively, while women tended to rate their physical abilities and discomfort as worse than men using the SIP physical subscale (8.5 vs. 11.3; males /females; $P = 0.053$), we did not find significant differences between men and women in any of the variables assessed (SIP psych: 9.7 vs. 9.9; SIP total: 10.4 vs. 11.4; HAD anxiety: 6.3 vs. 7.0; HAD depression 4.9 vs. 4.6; males/females respectively).
CONCLUSION: Contrary to current literature, when comparing patients with similar malignancies, no differences emerged between the genders. Prior studies frequently focused on breast cancer with its potential impact on self-image and gender-identity. Instead, these results indicate that men require emotional support similar to women.

**SEX DIFFERENCES IN CORONARY RISK FACTORS AND SYMPTOMS.**

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BACKGROUND: The purpose of this study was to examine for risks and presentations of coronary heart disease (CHD) in women, compared to men.
METHODS: !Using available cardiology clinic records, 50 consecutive patients with documented CHD (positive stress ECG, prior myocardial infarction (MI), or angiographically confirmed coronary disease) were randomly chosen from June to August 1998 in Los Angeles County to complete a 15-minute questionnaire. The questionnaire assessed symptoms and risk factors for CHD and collected demographic data, such as age, sex, race/ethnicity, height, and weight.
RESULTS: The majority of respondents were Caucasians (89%) and male (65%). Men were younger than women at time of their first MI (48.7 yrs vs. 70 yrs; $p = 0.001$), more likely to have a history of smoking (96% vs. 60%; $p = 0.002$), and drink more glasses of alcohol per week (3.4 vs. 0.70; $p = 0.005$). Women reported more symptomatic dyspnea at moderate exercise levels, compared to men (53% vs. 22%; $p = 0.006$). Women also experienced more atypical ischemic symptoms, such as right shoulder, back, neck, and deep chest pain than men ($p < 0.05$ for all comparisons).
CONCLUSION: These data suggest that significant differences in coronary risk factors and atypical ischemic symptoms exist between women and men. Healthcare professionals must educate high-risk patients, especially women of atypical ischemic symptoms to ensure prompt access to treatment.

**PREMENOPAUSAL WOMEN'S RISK PERCEPTIONS: BREAST CANCER COMPARED TO COLON CANCER AND HEART DISEASE.** C.L. Lewis[1], M. Pignone[1], S. Sheridan[1]; [1]University of North Carolina at Chapel Hill, Chapel Hill, NC *(Tracking ID #51510)*

BACKGROUND: Multiple studies have found that premenopausal women overestimate their risk of breast cancer, but it is unclear if this overestimation is specific for breast cancer or if similar overestimation of risk occurs for other diseases. We compared women's perceptions of risk for developing breast cancer, colon cancer, and of having a heart attack over the next ten years.
METHODS: We recruited women ages 35 – 49 without a history of breast cancer from the waiting room of a university internal medicine practice. Participants were asked to complete a questionnaire assessing perceived risk. For each disease we asked, "Out of 1000 women like you how many will (get breast cancer, colon cancer, or have a heart attack) over the next ten years." Responses offered were 1, 10, 20, 100, or 500. We considered correct responses to be the average US population risk for women in this age group: 1/1000 for colon cancer, 10/1000 for breast cancer and 20/1000 for MI. We analyzed patient responses using two different definitions of "accurate responses": for the first analysis, only those patients who provided the correct answer were defined as being accurate. In the second analysis, we considered accurate responses to be the correct response or the two responses closest to the correct response.
RESULTS: 179 women completed questionnaires. Participants were predominately insured (80%), white (60%) and high school graduates (63%). The proportion of women who provided the single correct response about 10 year risk were 13% for breast cancer, 13% for colon cancer, and 23% for heart disease. When we defined the correct response or the two closest to it as "accurate" the proportions increased to 28% for breast cancer, 61% for colon cancer and 76% for heart disease. Women were more likely to overestimate the risk of breast cancer than the other two diseases; 48% thought women's risk of breast cancer was 100/1000 compared to 29% and 39% for colon cancer and MI respectively. Similarly, 25% thought the risk of breast cancer was 500/1000 compared to 11% for colon cancer, and 15% for MI.
CONCLUSION: Women 35 – 49 were more accurate in estimating the 10 year risk of colon cancer and heart disease than breast cancer and were more likely to overestimate the risk of breast cancer These data suggest that premenopausal women's overestimation of breast cancer risk may be disease specific and not simply a general fear of cancer or tendency to overestimate the risk of all diseases.

**GENDER DIFFERENCES IN PHYSICIAN BURNOUT IN THE US AND THE NETHERLANDS.** M. Linzer[1], J. Mcmurray[1], M. Visser[2], E. Smets[2], F.J. Oort[2], J. De Haes[2]; [1]University of Wisconsin-Madison, Madison, WI; [2]University of Amsterdam, Amsterdam, Netherlands *(Tracking ID #50413)*

BACKGROUND: We have previously reported gender differences in burnout in US physicians. We sought to determine if such differences were present in another Western industrialized nation (the Netherlands, NL) and if not, to explore why they are present in the US.
METHODS: Separate physician surverys were conducted in the US and NL (n=2326 US respondents, 33% female, adjusted response rate = 52%; n = 1436 NL, 18% female, adjusted response rate 63%). Standardized mean gender differences (effect sizes) in burnout predictors were determined and compared cross nationally.
RESULTS: While US women experienced burnout more than US men (28% of women vs 21% of men, $p < .01$), there was no gender difference in NL. US women worked fewer hours than US men (48 vs 56 hours), while NL women worked far fewer hours than NL men (44 vs 56 hours). Women in both countries described less work control than men. However the effect size of the gender difference was over 2 times greater in the US (.34 US vs .15 NL, $p < .05$). Children, home support and work-home interference were comparable between genders in the US.
CONCLUSION: Gender parity in physician burnout in NL may be due to fewer work hours by Dutch women and greater gender equity in work control than in the US. Legitimizing part-time practice and adjusting for gender-sensitive aspects of work control, such as case mix and time pressure, could reduce the US gender gap in physician burnout.

**PARTICIPANT ADHERENCE FOLLOWING THE RELEASE OF PRELIMINARY DATA IN THE WOMEN'S HEALTH INITIATIVE.** E. O'Fallon[1], K.L. Margolis[1], M.B. Pettinger[2]; [1]Hennepin County Medical Center, Minneapolis, MN; [2]Fred Hutchinson Cancer Research Center, Seattle, WA *(Tracking ID #50383)*

BACKGROUND: Eight years after the start of the Women's Health Initiative (WHI), the Data and Safety Monitoring Board overseeing the study recommended that all participants be informed of data from the early stages of the trial suggesting possible detrimental effects of hormone replacement therapy (HRT) on cardiovascular health. Our objective was to document the impact of the preliminary data release on participant retention and adherence in the HRT arm of WHI.
METHODS: We analyzed demographic, medical history, visit attendance and HRT pill count adherence data from the 681 Minneapolis Clinical Center WHI participants in the HRT arm of WHI who were alive and still taking blinded medication as of 4/99. A subset of 187 women who were not already scheduled for an annual visit before Dec 31, 2000, was contacted for an additional informational visit. Updated information on HRT was presented, using the 12 "Talking Points" created by the WHI, by a single trained interviewer. Responses to this participant update interview were recorded, and analyzed for content and themes.
RESULTS: The mean age of the participants at baseline was 66 + 7 years, 97% were White, and 73% had been educated beyond high school. At least one heart disease risk factor was present in 69%, but only 6% had known cardiovascular disease at baseline. During the one year period before the preliminary data release (4/99 – 3/00), 100% of participants due for a visit attended, 88% (95% CI 86% – 91%) took 80% or more of the HRT pills, and 6.3% (95% CI 4.4% – 8.2 %) discontinued their study pills. In the year following the data release (4/00 – 3/01), 100% of participants due for a visit attended, 87% (95% CI 84% – 90%) took 80% or more of the HRT pills, and an additional 5.5% (95% CI 3.6% – 7.3 %) discontinued their study pills. Of the 187 women contacted for an informational visit, 84 (45%) responded and scheduled an interview before 12/00. Of these, 69 (82%) were conducted in person, and 15 (18%) were done over the telephone. None of the women interviewed expressed a desire to discontinue the blinded medication or drop out of the study. The most commonly cited reason for wishing to continue was an altruistic desire to contribute to future womens' health.
CONCLUSION: The release of preliminary WHI data suggesting hormone replacement therapy might have a detrimental effect on women's cardiovascular health did not cause participants to drop out of the study or affect adherence to the HRT regimen.

**POSTPARTUM SHORTNESS OF BREATH.** J. Hutchings[1], H. Lee[1]; [1]Tulane University, New Orleans, LA *(Tracking ID #50596)*

LEARNING OBJECTIVES: 1. Diagnose peripartum cardiomyopathy. 2. Appropriately manage peripartum cardiomyopathy. 3. Assess the long-term prognosis for patients with peripartum cardiomyopathy.
CASE INFORMATION: A 21 year-old woman presented with three days of cough, chest pain and shortness of breath. The intermittent, substernal pain was exacerbated by coughing, and associated with dyspnea on exertion, two pillow orthopnea and paroxysmal nocturnal dyspnea. Six weeks prior to presentation she had delivered a healthy baby despite pre-eclampsia. She was taking no medications and denied ethanol or drug use. Her blood pressure was 135/96 mmHg and the heart rate was 110 beats/min. Her other vital signs were normal. She had a systolic murmur at the apex and an S3. The breath sounds were bilaterally decreased and there were crackles at the bases. She had hepatomegaly and bilateral lower extremity pitting edema. The EKG was normal. The chest x-ray revealed cardiomegaly, bilateral pleural effusions and pulmonary edema. An echocardiogram showed a dilated cardiomyopathy with an ejection fraction of 10% and severe mitral and tricuspid regurgitation.
DISCUSSION: The diagnosis of peripartum cardiomyopathy should be considered when common causes of cardiac failure are absent. Symptomatic heart failure presents from the last month of pregnancy to five months post-partum. The treatment is similar to other cardiomyopathies: diuretics, afterload reduction, and low dose beta-blockers. Management must be tailored to agents safe for pregnancy and breast feeding. The long-term prognosis for peripartum cardiomyopathy is variable and depends upon normalization of left ventricular function. An echocardiogram should be repeated six months after diagnosis to assess long term prognosis. A persistent abnormality suggests permanent dysfunction and is an absolute contraindication to further pregnancies. Fifty percent of patients will have persistent left ventricular dysfunction; the five year mortality rate in these patients is eighty-five percent.

**ARE BRIEF SCREENING INSTRUMENTS ACCURATE FOR DETECTING INTIMATE PARTNER VIOLENCE?** Y. Qazi[1], H.D. Nelson[1]; [1]VA Medical Center and Oregon Health & Sciences University, Portland, OR *(Tracking ID #45895)*

BACKGROUND: Studies estimate that up to 4 million women in the US are physically, sexually, or emotionally abused by their intimate partner each year, with up to one-third of all women reporting being abused at some point in their lifetime. Although several screening instruments have been validated and used in the psychiatric setting, they are lengthy, and no gold standard has been established for use in the primary care setting. In this study, we systematically reviewed the evidence about accuracy of screening instruments for the detection of intimate partner violence in primary care for the US Preventive Services Task Force update of recommendations on screening for family violence.
METHODS: We searched MEDLINE (1966 – 2001), PsycINFO (1984 – 2001), and Health & Psychosocial Instruments (1985 – 2001) and reference lists of key articles. All studies were conducted in the primary care, ob/gyn, or emergency department setting, and examined verbal or written questionnaires designed to detect intimate partner violence against women. Inclusion/exclusion criteria were applied and studies were rated for quality.
RESULTS: 789 abstracts were reviewed, but only 13 met inclusion criteria. Five studies compared screening instruments to previously validated instruments in the psychiatric literature. The HITS (Hurt, Insulted, Threatened, Screamed at) instrument performed well (Sherin, 1998): it had good internal consistency (Cronbach's alpha = 0.80) and its results correlated with the previously validated Conflicts Tactics Scale (CTS) (r = 0.85). The Partner Violence Screen (PVS) (Feldhaus, 1997) had relatively high sensitivity and specificity when compared to either the Index of Spouse Abuse (ISA) (64.5% & 80.3%) or the CTS (71.4% & 84.4%).
CONCLUSION: Few studies have examined the effectiveness of screening instruments in the detection of intimate partner violence. HITS and PVS are 2 brief screening questionnaires that may be effective in the detection of intimate partner violence. As time is increasingly limited in health care visits, such brief and accurate screening instruments may offer a more practical alternative to longer instruments in settings in which it is deemed appropriate. More studies should be done in the primary care setting to further validate these findings.

**THE DEVELOPMENT AND VALIDATION OF A VALUES BASED DECISION MODEL FOR HORMONE REPLACEMENT THERAPY.** M.M. Schapira[1], M.A. Gilligan[1], A.B. Nattinger[1]; [1]Medical College of Wisconsin, Milwaukee, WI *(Tracking ID #51935)*

BACKGROUND: Decisions regarding use of hormone replacement therapy (HRT) involve consideration of values across several domains. We developed and validated a multi-attribute utility model to gain insight into the contribution of patient-centered values to HRT decisions among postmenopausal women.

METHODS: Structured interviews were conducted among 48 postmenopausal women to elicit factors important to decision making for HRT. Using standard qualitative analyses methods, key factors important to decision making were identified and organized in a hierarchical model. Eight factors (Table) were grouped into 3 categories: 1) long-term health, 2) quality of life, and 3) attitudes toward menopause. A second group of 97 postmenopausal women participated in a validation study. Subjects assigned weights to each factor and weighed each factor against other factors in the model.
RESULTS: The mean net weighted utility score for the 48 HRT current users vs 49 non-users was 0.55 and −0.23, respectively (p < 0.0001). Among HRT current users, key factors supporting use were concerns about heart disease, osteoporosis, and symptoms of menopause. Among non-users, key factors weighing against use were the side effects of HRT, concerns about breast cancer, and wanting to have a natural menopause (Table).
CONCLUSION: Our model was able to discriminate between users and non-users of HRT and identify factors that weighed for or against use in each of these groups. We propose that such a model be adapted for patient use to help women consider the key values important to them in the decision to use or not use hormone replacement therapy.

**Net Weighted Utiity Scores of HRT Users vs Non-Users**

| | Current HRT User | HRT Non-User | P-value |
|---|---|---|---|
| Breast Cancer Concerns | 0.04 | −0.09 | <0.0001 |
| Heart Disease | 0.12 | 0.03 | 0.003 |
| Osteoporosis | 0.12 | 0.02 | 0.0001 |
| Symptoms | 0.13 | −0.01 | <0.0001 |
| Femininity | 0.03 | −0.02 | 0.07 |
| Side Effects of HRT | 0.03 | −0.14 | <0.0001 |
| Natural Menopause | 0.01 | −0.04 | 0.001 |
| Taking a daily Pill | 0.07 | 0.02 | 0.007 |
| Total Scores | 0.55 | −.23 | <0.0001 |

**ADVANCE PROVISION OF EMERGENCY CONTRACEPTION: A RANDOMIZED CONTROLLED TRIAL.** E.B. Schwarz[1], R. Jackson[2], P.D. Darney[3], L. Freedman[4]; [1]Department of General Internal Medicine, University of California, San Francisco, San Francisco, CA; [2]Department of Obstetrics, Gynecology, and Reproductive Science, San Francisco General Hospital, University of California, San Francisco, San Francisco, CA; [3]Department of Obstetrics, Gynecology, and Reproductive Science, San Francisco General Hospital, Center for Reproductive Health Research and Policy, University of California, San Francisco, San Francisco, CA; [4]Department of Sociology, University of California, Davis, Davis, CA *(Tracking ID #50581)*

BACKGROUND: The United States has the highest abortion rate of any developed nation. By age fifty, 45% of American women will have had an abortion. Emergency Contraception has the potential to significantly decrease the number of unwanted pregnancies and abortions that American women face. However, pills must be taken within 72 hours of unprotected intercourse, and it is often difficult for women to access a health care provider on such short notice. Some providers have worried that advance provision of emergency contraception will lead women to take unnecessary contraceptive risks. Prior studies in Scotland, India and a small group of American teens have not supported these fears. This study was designed to evaluate whether advance provision of emergency contraception adversely affects American women's contraceptive behavior.
METHODS: We performed a randomized controlled trial of advance provision of emergency contraception to a consecutive sample of 370 women admitted to San Francisco General Hospital, an inner city public hospital. Prior to discharge from the labor and delivery unit, 184 women received education about emergency contraception and a packet of pills with instructions for their use. This was in addition to routine contraceptive education. A control group of 186 women received routine contraceptive education which did not include a discussion of emergency contraception. Women were interviewed by phone at 6 month intervals for a total of one year of follow up.
RESULTS: Advance provision of emergency contraception significantly increased women's use of emergency contraception (n = 15 (11.7%) vs n = 3 (2.3%); RR = 5.0 (1.48 – 16.9)), without changing their use of routine contraceptives (n = 101 (79%) vs n = 101 (79%); RR = 1.00 (0.88 – 1.13)) or likelihood of reporting unprotected intercourse (n = 69 (54%) vs n = 60 (47%), RR = 0.87 (0.67 – 1.13)) over one year of follow up.
CONCLUSION: Advance provision of emergency contraception does not lead women to take contraceptive risks. It is safe and appropriate to provide emergency contraception as a routine part of well-woman exams.

**PROVIDING COMPREHENSIVE CARE TO SPECIAL POPULATIONS: WOMEN IN VETERANS ADMINISTRATION.** M.R. Seaver[1], S.M. Frayne[2], S. Loveland[2], V. Parker[2], C.L. Christiansen[2], K.M. Skinner[2]; [1]VA Boston Healthcare System, Boston, MA; [2]Bedford VA, Bedford, MA *(Tracking ID #51696)*

BACKGROUND: With finite resources, it is challenging to develop systems of care that meet the health needs of special populations. The question of whether to provide their care in integrated vs. separate settings often arises. Women are designated as a special population in the Veterans Administration (VA) because they represent only 5% of VA patients. We examined the current structure of women's health services delivery in the VA and explored an ideal model of care for women veterans.
METHODS: We surveyed all VA Women Veterans Coordinators (WVC); WVCs are charged with overseeing women's health programs at their facilities. Data were collected by self-administered mailed survey to all WVCs at VA facilities; 84% (n = 122 WVCs representing over 100 facilities) responded.
RESULTS: Three-quarters of VA facilities have separate women's health clinics. At 8% of facilities, all women receive their primary care in comprehensive women's clinics, but this is not the norm: at 52% of facilities the majority of women patients do not receive primary care in comprehensive women's clinics. Some gender-specific care, including basic preventive healthcare, is provided at 93% of facilities. However, at many facilities women receive specialized services outside the VA on a contract basis, e.g., obstetric care (75% of facilities), infertility treatment (60%), and mammography (57%). Such specialized services provided outside the VA are "occasionally" (45%) or "frequently" (8%) difficult to obtain, according to WVCs. When asked about their preference regarding an ideal model of health care for women veterans, 70% of WVCs rated a separate comprehensive women's health clinic (providing primary, gender-specific, and mental health care) as highly preferable. Conversely, integrated clinics serving both women and men received the lowest preference from 67% of WVCs.
CONCLUSION: Because there is no universally accepted approach to providing services to special populations, a variety of models have evolved. In the VA, where women are a numerical minority population, a substantial amount of routine gender-specific care is provided outside of the system (although still funded by VA). WVCs perceive this fractionation of care as a barrier to high quality, comprehensive care. The majority of WVCs identified a comprehensive women's clinic as a highly preferable setting for delivering care to women veterans. The perceived advantages of separate comprehensive health clinics for women veterans may be generalizable to other special populations within and outside VA.

**ATTITUDES AND PERCEPTIONS OF OBESITY AND WEIGHT REDUCTION AMONG AFRICAN-AMERICAN AND CAUCASIAN WOMEN.** A. Singh[1], C.E. Blixen[1], L. Copeland[1], H. Thacker[1]; [1]Cleveland Clinic Foundation, Cleveland, OH *(Tracking ID #50893)*

BACKGROUND: The prevalence of obesity has risen dramatically in the United States over the past four decades. A recent study found that 54% of all US adults are overweight — an increase of about 33% since 1978. Obesity increased by 47% among Caucasian (C) and by 39% among African Americans (AA). Among AA, the proportion of women who are obese is 80% higher than the proportion of men who are obese. However, little has been written about differences in attitudes and perceptions of obesity between women with different cultural/ethnic backgrounds. The objectives of the present study were to assess the attitudes and perceptions of obesity, and self-perceived barriers to weight loss among AA and C women with a BMI ≥30 who were followed in a General Internal Medicine (GIM) clinic.
METHODS: We used focus group methodology to collect data from a homogenous group of indidviduals using a predetermined, structured sequence of questions in a focused discussion. Four separate focus groups (2 AA and 2 C) with a total of 17 adult women with a BMI of ≥30 were conducted over a two month period. Discussion was facilitated by a moderator in a non-threatening, non-evaluative environment. Each session lasted an hour and a half and was recorded on audiotape. Transcript based analysis consisting of a general review of the transcripts accompanied by marginal notes and reflective memos was used to develop codes and themes of the written transcript.
RESULTS: The majority of women in both groups viewed themselves as "overweight" rather than "obese," and most were quite aware of the medical problems associated with "gaining weight." Both groups also felt that culture and ethnicity influenced their eating habits. However, while AA women cited eating habits, food cravings, and family influence as their most significant barriers to weight loss, C women felt that older age, lack of commitment to dieting, and depression, were key barriers for them. While C women felt their weight made them unattractive to men, AA women felt that their men "liked them with some meat on their bones". The groups also differed in what they expected from their primary care physician in helping them to lose weight. While the AA women wanted encouragement and support from their physician in the form of weekly support group meetings with other women seeking to lose weight, C women wanted weekly individual appointments with their physician where they would be "weighed in" and told about the "bad things" that would happen to them if they didn't lose weight.
CONCLUSION: Differences in attitudes, perceived barriers, and expectations from their primary care provider were found between C and AA women. In order to develop relevant weight reduction programs in GIM practices, information from the present study will be used to develop a comprehensive questionnaire that assesses attitudes and perceptions of weight and weight reduction in a broader sample of women.

**SURGERY FOR BREAST CANCER: DOES OUTPATIENT CARE CREATE DISPARITY IN TREATMENT AND OUTCOME?** C.A. Steiner[1], M. Johantgen[2], U. Vo[3]; [1]AHRQ, Rockville, MD; [2]University of Maryland, Baltimore, MD; [3]GWU, Washington, DC *(Tracking ID #52188)*

BACKGROUND: The shift of breast-conserving surgery from the inpatient (IP) to outpatient (OP) setting raises quality concerns. This study examines staging with lymph node dissection (LND), and the likelihood of re-excision for women whose first surgical breast procedure is OP as compared to IP.
METHODS: IP and OP discharge data were used for five states (CO,CT,MD,NJ,NY) from the Healthcare Cost and Utilization Project, 1990-1997. Women coded for a lumpectomy (LUMP, ICD-9 8521), subtotal mastectomy (ST, ICD-9 8522-8523) or mastectomy (MAS, ICD-9 8541-8548) for breast cancer (ICD-9 1740-49; 2330; V103; 1963; 19981) were extracted. Percent of women receiving a LND at the time of OP or IP LUMP and ST were compared across time. Episodes were created using CT data, where an encrypted patient pseudo-identifier is available. During a 6-month index period (10/96 – 3/97), all LUMPs and STs for cancer were identified. All additional breast procedures within 9 months were linked to the index procedure. The 2-year period was used to measure overall use. A 3-month window was used to compare LND and re-excision. Age (<50 vs. >51), severity (metastasis vs. none), comorbidity (any vs. none), carcinoma-in-situ, payer, hospital teaching status and urban location were included.
RESULTS: In 1996 alone, we identified ∼20,000 women with either a LUMP or ST in the five states. There was an increase in use of LND for LUMP and ST from 1990 – 96 in all 5 states. However, the percent of LND at the time of IP LUMP exceeded that for OP between 4 and 14 fold (e.g. NY: 82% of IP LUMP had a LND; 6% of OP LUMP). For IP ST, the use of LND exceeded that of OP between 3 and 9 fold, except in CO(1.3). In CT (n = 1251 index procedures), episode analyses showed that 60 to 70 percent of the women whose index LUMP

or ST was IP had only a single visit in the 2 year time frame, as compared to 40% of women whose index procedure was OP. Whereas 3% of OP LUMP and 11% OP ST received a LND on the same admission, 22% of OP LUMP and 30% of OP ST received a LND within 3 months of the index procedure. This compares to 70% of IP LUMP and 85% of IP ST. Finally, 31% of women whose index LUMP was OP received a ST or MAS within 3 months as compared to 5% of women whose index LUMP was IP. Similarly, 22% of women whose index ST was OP received a MAS, as compared to 6% whose index ST was IP.
CONCLUSION: Women whose index procedure is OP receive twice as many additional admissions, have far fewer LNDs, and need more extensive re-excisions 3 to 5 times more often as compared to women whose index breast conserving surgery is IP. These findings strongly suggest that the use of OP services for complex diseases may lead to more fragmented care and additional procedures.

**SURVEY OF RESIDENTS' ATTITUDES AND PRACTICES IN SCREENING, MANAGING AND DOCUMENTING DOMESTIC VIOLENCE.**
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BACKGROUND: Previous studies reveal deficiencies in residents' screening, managing and documenting domestic violence (DV). Little is known about residents' reasons for not screening or documenting.
METHODS: We surveyed 103 internal medicine residents from four programs about their attitudes and practices in screening, managing and documenting DV.
RESULTS: All residents responded. Ninety (87%) agreed that DV is a significant health care problem, and 79 (77%) agreed that physicians can intervene effectively in DV. Forty-five (44%) had previous DV education, which correlated with increased learning. Thirty-eight (37%) do not routinely screen for DV. Those who do, screen various populations. Sixteen (21%) do not screen because they do not know how. Eighty-five (82%) would generally document DV in the chart. Fifty-three (51%) would not document for these reasons: 13 (25%) feared that patient's partner may harm the patient, 10 (19%) said patient may not be telling the truth, 6 (11%) feared that the partner may retaliate against the physician, and 5 (9%) cited fear of malpractice. When asked about documenting DV on the billing sheet, 47 (46%) said they would, while 46 (45%) would not. Sixty-one (59%) were unaware of the state law about reporting DV. Fifty-nine (57%) said they would ask about DV more often if they knew that state law mandated it. When asked to choose whether certain management interventions were helpful or unhelpful, many chose incorrectly.
CONCLUSION: Future educational efforts should be directed at residents' gaps in knowledge and attitudes to improve screening, managing and documenting DV.

**ARE WOMEN TRULY MAKING AN INFORMED DECISION WHEN THEY DECLINE HIV TESTING DURING PREGNANCY?**
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BACKGROUND: Pregnancy is an ideal time for practitioners to counsel women on the benefits of HIV identification and provide testing. Since perinatal transmission of HIV can be effectively reduced with treatment during pregnancy, many states mandate by law that pregnant women be provided such counselling and be offered testing. Data suggests that these laws have been effective in clinic settings. We set out to assess provider HIV screening practices in private obstetric offices in Rhode Island and to explore patients' attitudes regarding their understanding of this practice.
METHODS: Six-hundred and twenty newly postpartum women cared for by private obstetricians' practices in Rhode Island were surveyed between January and July of 2001 regarding their experience and attitudes towards prenatal HIV testing in the index pregnancy with a self-administered anonymous questionnaire. Each patient's prenatal record was also reviewed to assess whether providers documented test offering.
RESULTS: Only 69% of surveyed patients reported they were offered HIV testing during the index pregnancy. Patient reporting of having been offered testing was strongly associated with having documentation in their chart as such ($p < .001$). Of those who were not offered screening, as many as 72% stated they would have agreed with testing if offered. Among respondents offered testing, 47% declined. Most commonly, the reason for declining HIV testing during pregnancy was a self-perceived lack of risk. Only 63% of all patients surveyed agree that any woman who has unprotected sex has potential exposure to HIV. Twenty-seven percent of patients who declined HIV testing had no knowledge that medications are available that could decrease HIV vertical transmission.
CONCLUSION: Despite current legislative and educational efforts, a substantial number of pregnant patients are not being offered HIV testing or being given adequate HIV counseling in private offices in RI. More focus on this matter is needed if we are to truly maximize maternal health and minimize perinatal transmission of HIV in the USA.Internists can have an important role in ensuring that young women are counselled for and offered HIV testing even prior to pregnancy. Renewed educational efforts and/or the institution of routine and universal prenatal HIV testing with patient notification may also be necessary.

**CAN FEMALE VA USERS OBTAIN COMPREHENSIVE WOMEN'S HEALTH CARE?**
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BACKGROUND: Despite a growing number of female veteran users, little is known about health services delivery to women across the VA. Our objective was to assess VA availability of health services necessary for the comprehensive care of women.
METHODS: We conducted a nationwide survey of all 166 VA facilities that delivered outpatient care to 400 or more women veterans in fiscal year 2000. The survey respondent was the senior clinician most responsible for the delivery of women's health care at that site. We assessed both on-site and off-site availability of 9 basic women's health services (mammograms, pap smears, hormonal contraception, urine and serum pregnancy tests, management of vaginitis, menstrual disorders, menopausal health, and sexual trauma screening), 10 services required for comprehensive non-obstetrical care, and prenatal care. We identified independent predictors of availability of on-site services.
RESULTS: The response rate was 81% (n = 135). 82% of respondents reported on-site availability of 8 or more of 9 basic services; 99% reported availability of these services through any arrangement (on or off-site). All but 1 facility offered cervical cancer screening on-site. 9% did not offer urine pregnancy tests on-site. 31% provided 8 or more of the 10 non-obstetrical comprehensive services on-site, and 99% offered them through alternative arrangements. Prenatal care is offered on-site at 10% of facilities, through off-site arrangements at 87%, and is unavailable at 4%. VA characteristics that were independently associated with offering a greater number of basic or comprehensive services on-site were greater organizational complexity, less local managed care penetration, and having a separate women's health budget. Geographic region, urban location, sufficiency of primary care program resources, and the degree of separation of women's primary care were not independently associated with on-site service availability.
CONCLUSION: Virtually all VA's have developed arrangements to assure availability of comprehensive women's health services. On-site "one-stop shopping" is routinely available only for basic services, though VA's in areas with less managed care penetration offer more on-site comprehensive women's healthcare. Further work is needed to evaluate the cost and quality trade-offs between using non-VA sites to increase availability of specialized services and using VA sites to enhance continuity of care.

**OBESITY AND MAMMOGRAPHY USE: THE ROLE OF RACE, ILLNESS BURDEN AND OTHER FACTORS.**
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BACKGROUND: Obese women report lower rates of cancer screening than normal weight women (BMI 18.5 – 24.9). The nature of this disparity and whether it differs by race is unclear. We studied the relationship between obesity and mammogram (mammo) use by race and explored the role of potential mediators.
METHODS: We used data from the 1998 National Health Interview Survey, a nationally representative in-person household survey. We used logistic regression to examine the relationship between BMI and mammo use in the last 2 years (yrs) among women aged 50 – 75 yrs. We initially adjusted for demographic factors, insurance status, number of doctors visits, usual provider/source of care, and health status (model 1). We then further adjusted for comorbid conditions and mobility impairments (model 2). In subsequent analyses, we adjusted for psychological functioning and health habits (smoking, alcohol use, physical activity). We used SUDAAN to account for the sampling design and weighted results to reflect population estimates.
RESULTS: Among 5277 eligible women, 72% reported mammo use in the last 2 yrs. The mammo rate was 74% for whites and 70% for blacks. White women with a BMI>35 were least likely to report mammo use (see table), while overweight (BMI 25 – 29.9) and mildly (BMI 30 – 34.9) to moderately (BMI 35 – 39.9) obese black women were more likely to report mammo use. Differences by BMI and race were not diminished by adjusting for illness burden (model 2), psychological functioning or health habits (data not shown).
CONCLUSION: While white women with moderate to severe (BMI>40) obesity reported lower mammo use, overweight and obese black women reported higher use when compared to normal weight women. Differences by weight and race were not explained by access to care, illness burden, psychological functioning, or health habits.

**Odds Ratio (95%CI) for Mammo Use By BMI Compared to Normal Weight Women**

| | BMI 25 – 29.9 | 30 – 34.9 | 35 – 39.9 | >40 |
|---|---|---|---|---|
| White Women | | | | |
| Unadjusted | 1.01(0.83 – 1.21) | 0.97(0.77 – 1.23) | 0.68(0.48 – 0.98) | 0.68(0.43 – 1.10) |
| Model 1 | 0.98(0.80 – 1.21) | 0.94(0.72 – 1.22) | 0.64(0.43 – 0.97) | 0.62(0.34 – 1.14) |
| Model 2 | 0.92(0.74 – 1.15) | 0.80(0.61 – 1.06) | 0.55(0.36 – 0.86) | 0.69(0.35 – 1.35) |
| Black Women | | | | |
| Unadjusted | 1.78(1.16 – 2.75) | 1.62(0.95 – 2.74) | 2.10(0.98 – 4.49) | 0.81(0.36 – 1.80) |
| Model 1 | 1.87(1.14 – 3.07) | 1.94(1.01 – 3.75) | 2.95(1.32 – 6.59) | 0.82(0.33 – 2.03) |
| Model 2 | 1.76(1.07 – 2.90) | 1.93(0.96 – 3.88) | 3.70(1.53 – 8.97) | 0.91(0.37 – 2.26) |

**FREQUENCY OF VISITS TO GASTROENTEROLOGISTS AND PRIMARY CARE PHYSICIANS WITH GI COMPLAINTS BY EATING DISORDERED PATIENTS.**
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BACKGROUND: Patients with anorexia and bulimia suffer from a variety of upper and lower gastrointestinal ailments. One-third of bulimic patients have esophageal inflammation or erosions by endoscopy; two-thirds have abnormalities of esophageal motility. While studies have documented the incidence of these abnormalities in patients with anorexia and bulimia nervosa, thus far no one has determined at what point during the course of these illnesses patients present to physicians with complaints involving the upper or lower GI tract.
METHODS: We surveyed thirty-four patients on the eating disorders unit with a previously validated questionnaire. The survey asked about the patient's past medical history, their primary eating disorder, the dates that they first sought medical attention and the results of these physician encounters.
RESULTS: Thirty-one (91%) of the patients were female; nineteen were anorexic. The median age was 26 years. Twelve patients (35%) had sought medical assistance from a gastroenterologist or primary care physician for a gastrointestinal complaint. Nine (27%) had sought help for their gastrointestinal complaints prior to seeking treatment for their eating disorder. Seven of these nine patients were not diagnosed as being eating disordered; they further indicated that their physicians had not inquired about an eating disorder. All seven had received either an endoscopy, an upper GI barium-contrast radiograph, or a lower GI barium-contrast radiograph.

CONCLUSION: Patients with eating disorders frequently seek medical attention for gastrointestinal complaints. Physicians should consider the diagnoses in patients with vague gastrointestinal complaints prior to referring them for invasive diagnostic tests.

# ERRATUM

Takano L., Chan B., Humphrey L.L. Postmenopausal hormone replacement therapy and stroke: a systematic evidence review and meta-analysis. J Gen Intern Med 2001; 16:177S. In this abstract, one author was omitted from the author listing. The corrected abstract appears below.

**POSTMENOPAUSAL HORMONE REPLACEMENT THERAPY AND STROKE: A SYSTEMATIC EVIDENCE REVIEW AND META-ANALYSIS.** L. Takano[1], B. Chan[1], L.L. Humphrey[2]; [1]Evidence-based Practice Center, Oregon Health Sciences University and Portland VA Medical Center, Portland, OR; [2]Portland VAMC & Oregon Health & Sciences University, Portland, OR *(Tracking ID #31956)*

PURPOSE: Stroke is the third leading cause of death and a major cause of disability among postmenopausal women in developed countries. Although postmenopausal hormone replacement therapy (HRT) is one of the most widely prescribed drugs, it is associated with increased rates of thromboembolic events and therefore may be important etiologically in stroke. We conducted a systematic evidence review and meta-analysis for the third US Preventive Services Task Force (USPSTF) to investigate the relationship between HRT and stroke.
METHODS: We searched the MEDLINE database from 1992 to 2000 for all published English language studies reporting the association between HRT and stroke. In addition, reference lists of key articles were reviewed for related studies, including those predating the search. Thirty-three observational studies met inclusion criteria and were reviewed; however, only those studies considered good or fair quality based on criteria developed by the USPSTF were included in the detailed review and meta-analyses. We identified no randomized controlled trials. We used the Bayesian data analysis framework for the meta-analysis.
RESULTS: The pooled relative risk of stroke mortality in women who had ever used HRT was 0.83 (95% Cl 0.64 – 1.05). Stroke incidence was significantly increased among ever users, with a pooled relative risk of 1. 15 (1.03 – 1.29). On subanalyses, the risk of thromboembolic stroke was significantly elevated among women who had ever used HRT (RR 1.30 [1.10 – 1.58]); however, not subarachnoid hemorrhage (RR 0.93 [0.69 – 1.25]) or hemorrhagic stroke (RR 0.71 [0.25 – 1.29]).
CONCLUSION: Studies evaluating the association between URT and stroke mortality suggest no effect. Our meta-analysis suggests an increase risk of the incidence of total stroke, largely due to thromboembolic stroke, among women with exposure to HRT. These results are consistent with preliminary findings from the Women's Health Initiative. The results are limited by the observational nature of the data and randomized controlled trials will be the most valid way of clarifying the association between stroke and HRT.